A COGERAÇÃO COMO UM NOVO NEGÓCIO

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EDISON ELECTRIC INSTITUTE

- ASSOCIAÇÃO DE CONCESSIONÁRIAS AMERICANAS E EMPRESAS MULTINACIONAIS ATUANTES NO MERCADO DE ENERGIA.
- Defesa dos interesses dos associados em esfera federal e internacional.
- Expansão de oportunidades de mercado
- informações estratégicas relativas à industria de energia em todo o mundo.

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O programa internacional

- **44 associados internacionais em 21 paises em todos os continentes.**
  - Dispõe de informações estratégicas
  - incrementam o conhecimento de seus executivos
  - expandem os horizontes de seus negócios
  - maximizam seus investimentos
  - mantém suas equipes envolvidas com o mercado internacional.

As vantagens da geração distribuida para sua empresa

- Vantagem estratégica
- ganhos economicos e tarifários
- potencial de faturamento com novo produto
- o mercado prevê 5,8% de crescimento anual para os próximos 10 anos.
- O mercado prevê continuo aumento de tarifas em US$.

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Considerações sobre o mercado brasileiro

- **Hoje, temos 33 medidas a implantar, pelo relatório de progresso no. 3, demandando investimentos de US$ 40 bilhões em 4 anos, para gerar mais 26.000 MW.**
- **Convém lembrar que Capital não se impõe, capital se atrai:**
  - a falta de regulação de hoje...
  - a contenção e distorção tarifária atual....
  - afasta o investidor de amanhã,
  - que provoca a crise no futuro próximo,
  - que explode as tarifas a seguir.

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As conclusões de uma pesquisa atual com 130 executivos do setor:

- **é essencial a estabilidade e a definição dos marcos regulatórios para a atração de capitais nacionais e internacionais.**
  - Lei 10438 reforça o papel estatal no setor e agrega novas distorções ao setor
  - o MAE ainda não funciona, há muitas ações judiciais.
  - O Acordo Geral sai em Julho, com a extinção das ações judiciais.
  - há lacuna de atribuições
  - há dificuldades da ANEEL com suas atribuições.

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A loucura tributária sobre energia:

- **Do faturamento sobre energia elétrica:**
  - 32% de tributos diretos.
  - 8% de outros encargos setoriais.
  - 15,2% de custos operacionais.
  - 4,8 % de remuneração.

  - CONCLUSÃO:
  - aumento continuo de tarifas para os próximos anos.

Algumas boas noticias

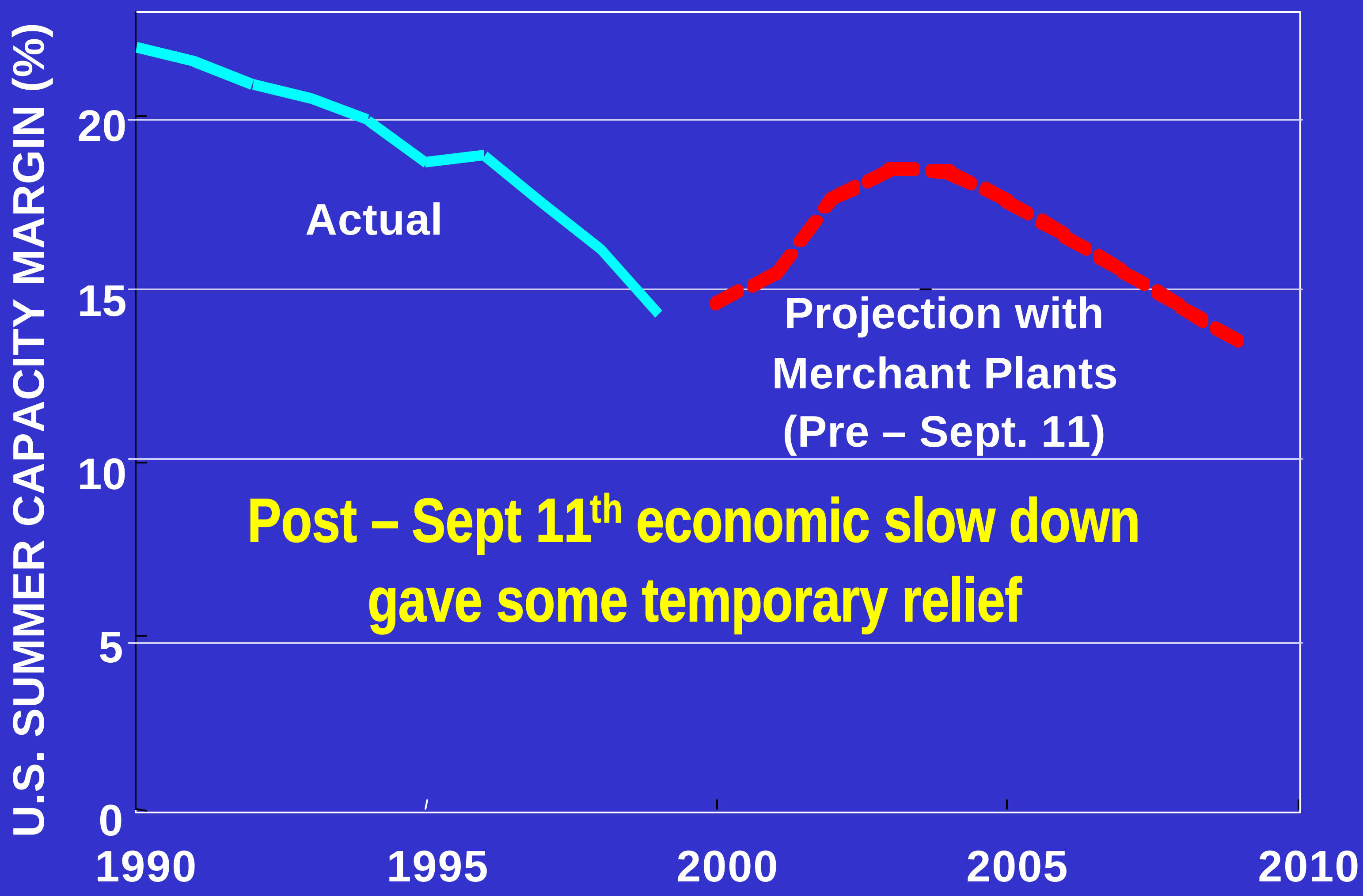
- legislação garante a estabilidade fiscal e parte da estabilidade financeira
- não há como romper os contratos por medida provisória.
- Em 8 anos, o investimento externo no Brasil já atinge US$ 150 BI .
- 6 mil MW já entraram em operação de Abril de 2001 a Abril/2002.
- A interligação Sul-Sudeste está quase pronta.
- A sociedade acordou para o problema da energia.

para pensar mais tarde!!

- Investimentos da sociedade, como caderneta de poupança vinculada a projetos de energia
- eficiencia energética é uma solução.
- Energias renováveis estão decolando.
- há US$ 60 bilhões em recursos brasileiros no exterior.
- 20 milhões de brasileiros voluntários em programas sociais.
- O numero de faculdades cresceu 90% em 5 anos.

Prescription for the Wholesale Markets

Generating Capacity Margins Dropping



Dr. Eric Hirst www.EHirst.com

A Robust Generation Market Can Lower Prices, But . . .

- **Generation not keeping pace with demand -- margins dropping**
- **Crisis in confidence as a result of Enron – cancellations**
- **Siting problems**
- **Fuel diversity – challenges with each fuel**
  - Coal -- certainty on environmental rules/policies
  - Nuclear -- waste storage and decommissioning
  - Gas -- infrastructure enhancement
  - Hydroelectric -- relicensing streamlining
  - Renewable and new technology – funding
- **Need proper pricing signals**
- **Electric company formation / operation – barriers**

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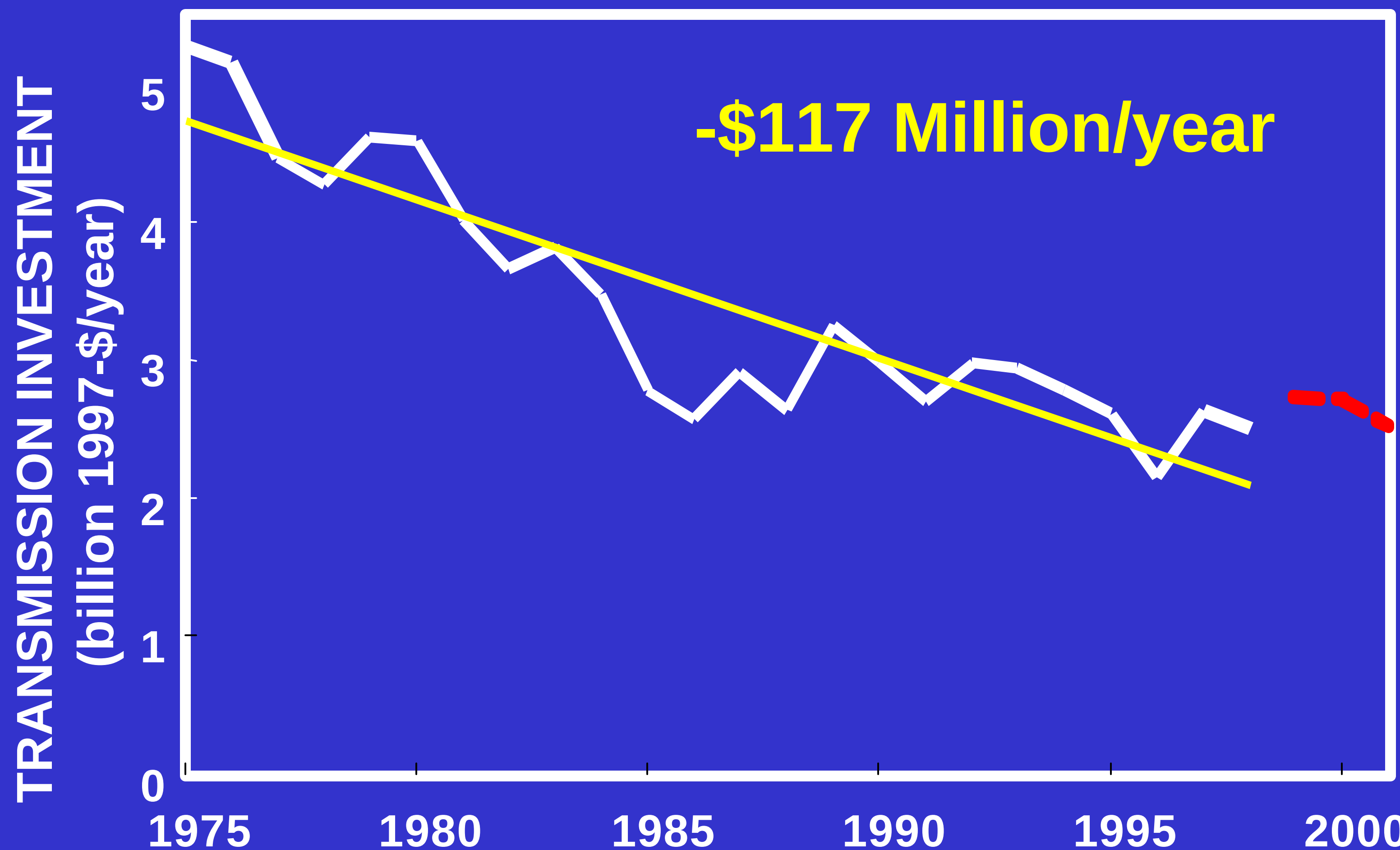
Transmission Investment Declined for ~ 20 Years



Dr. Eric Hirst, *Transmission Planning for a Restructured US Electric Industry*, EEI, 2001

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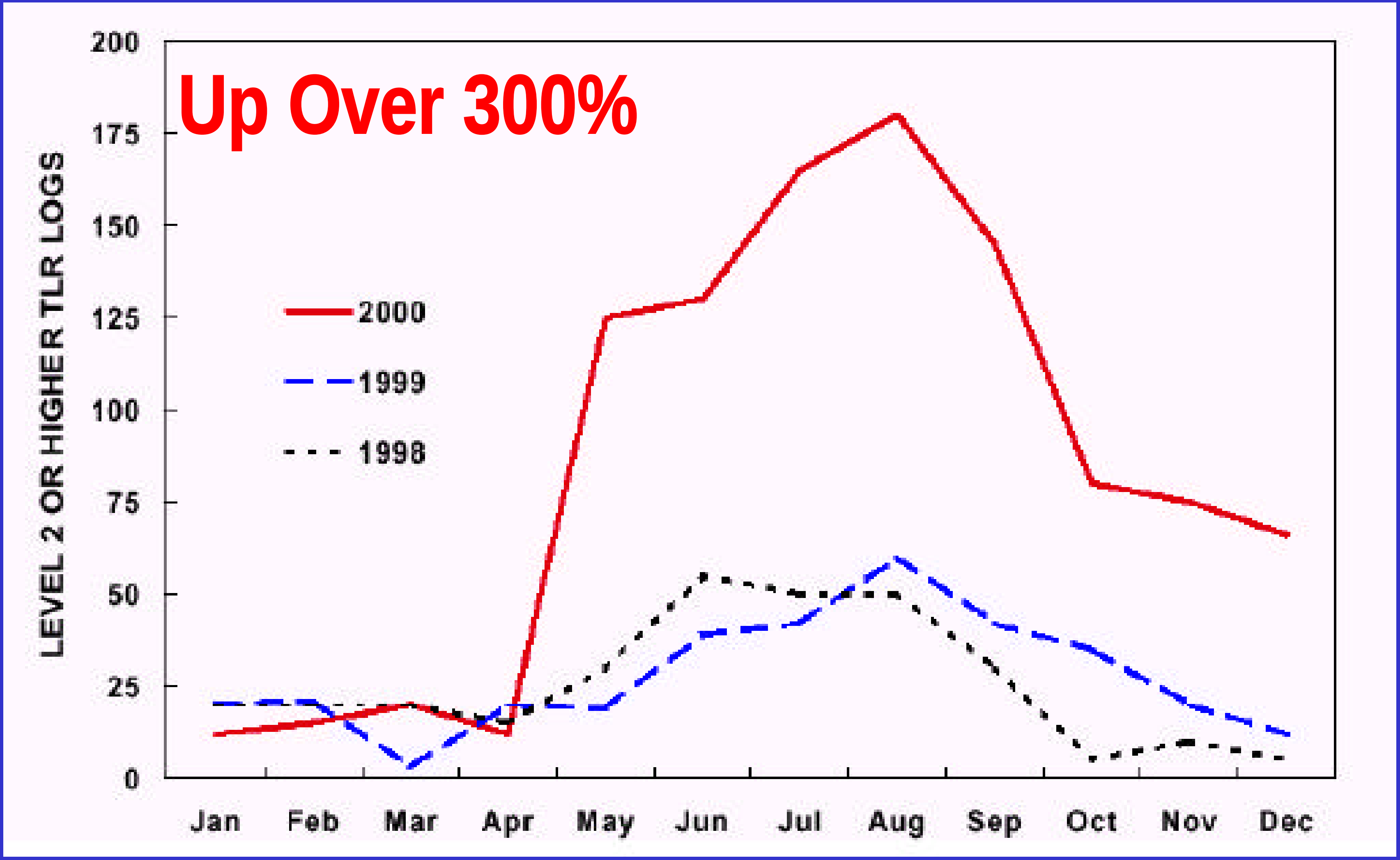
Transmission Congestion
Too Much Over Too Little!



Dr. Eric Hirst, *Transmission Planning for a Restructured US Electric Industry*, EEI, 2001

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More Transmission Is Needed Too!

- **Transmission system not keeping up with demand**
  - Transactions increased by **400%** over last 4 years
  - Congestion increased over **300%** (Transmission Line Relief - TLRs)
  - Very few transmission facilities expected over next decade
    - Investment decreasing by ~ **$120 million/year**
    - **Quadruple** investment to maintain current level of adequacy this decade
  - FERC estimates bottlenecks cost **$12.6 billion/year**
- **Transmission siting and permitting must be expedited**
- **Resolve legal / legislative / regulatory uncertainty**
  - Transmission pricing, tax and accounting laws, corporate structure and 3rd party liability, restructuring and mergers, Federal role in reliability, Regional Transmission Organization (RTO) formation, market power policies, unbundling and asset transfers

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Price Responsive Demand Needed

- **Demand response can yield significant benefits:**
  - As a mechanism to avoid purchasing high cost energy
  - By mitigating “market power”
  - As a method of dealing with emergency situations
- **Some important issues**
  - Cost recovery - recovery of RTO imposed program costs
  - RTO interference with state programs?
  - Impact on supply / consumer contracts?
  - Customer confusion – Who should customers call?
  - Rate caps - how do we get the proper price signal to customers?
    - Real-time, TOU, average? Unbundling energy from delivery?
  - Information resources - metering, scheduling, customer interface, verification

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FERC – A *New Activist Role!*

- **Chairman Pat Wood, III**
  - Pro-consumer, market-oriented vision of utility regulation
  - Wants a seamless, national power marketplace realized through well functioning RTOs
- **"Well functioning markets depend on three key elements"**
  - Adequate infrastructure
  - Clear and balanced rules that allow efficient trading (Market design)
  - Effective oversight and enforcement
- **FERC (Staff) Vision Statement Released (Dec 17th)**
  - Anticipates fully unbundled markets
  - No barriers to entry/exit
  - Clear market power rules
  - Market power oversight

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Retail Competition In The States

What's Happening?
What's Needed?

California – A Turning Point In Restructuring

- **Flawed market design**
  - No long term fixed cost power contracts
  - All power priced at highest cost transaction
  - Utilities required to sell to/buy from Power Exchange for 5 years
  - Overexposure to spot market 50-60% unhedged (others 10-20%)
  - Divestiture of fossil fired plants
- **Allegations of supply-side gaming and exercise of market power**
- **Underdeveloped demand-side responsiveness**
- **Unforeseen ramifications of Provider of Last Resort (POLR) obligations**

California Aftershocks

- **Raised legislator, regulator, consumer advocate concerns about benefits of competition *verses* cost-of-service regulation**
  - Stopped, slowed, reversed restructuring in other states
  - Changed company strategies
    - Rebundling, asset transfers/spin-offs, return to rate based generation
  - Increased pleas for municipalization
- **Raised Wall Street's concerns about utility business risk**
  - PG&E bankruptcy, volatile wholesale prices, gas price spikes, etc.
  - Mounting concerns over burden of POLR and other residual obligations
  - Enron fueled the fires
- **Prompted FERC / state actions**
  - FERC - Price mitigation, market oversight and enforcement
  - State – State buying entity, calls for conservation, expedited siting, some rate incentives

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State Restructuring – California Slowing the Pace

- **Restructuring movement affected**
  - North Carolina
  - No longer considering restructuring – AL
- **Start delays**
  - Start date – AR, NM, OR, WV
  - Indefinitely delayed -- OK
- **Transition period**
  - Extended – MT, NH
- **Divestiture mandate**
  - Rescinded – NV
- **Others stayed the course**
  - Texas, Virginia

Maybe It's Too Early To Judge?

- **The transition has not be that smooth or as complete as expected**
- **The emerging drop in wholesale prices may once again turn the retail markets around**
- **Retail competition is not an overnight change**
  - Retailers trying to figuring out their place in a low margin service (Green power?)
  - Consumers looking but California's problems has put a chill in the air
    - Don't forget – consumers must warm to this "new product" and fell comfortable
    - We can't expect 40% switching rates overnight
- **Switching rates in many states depend upon a legislative guess at an appropriate rate (generally a discount from a rate in effect on a date certain less 5-10%)**

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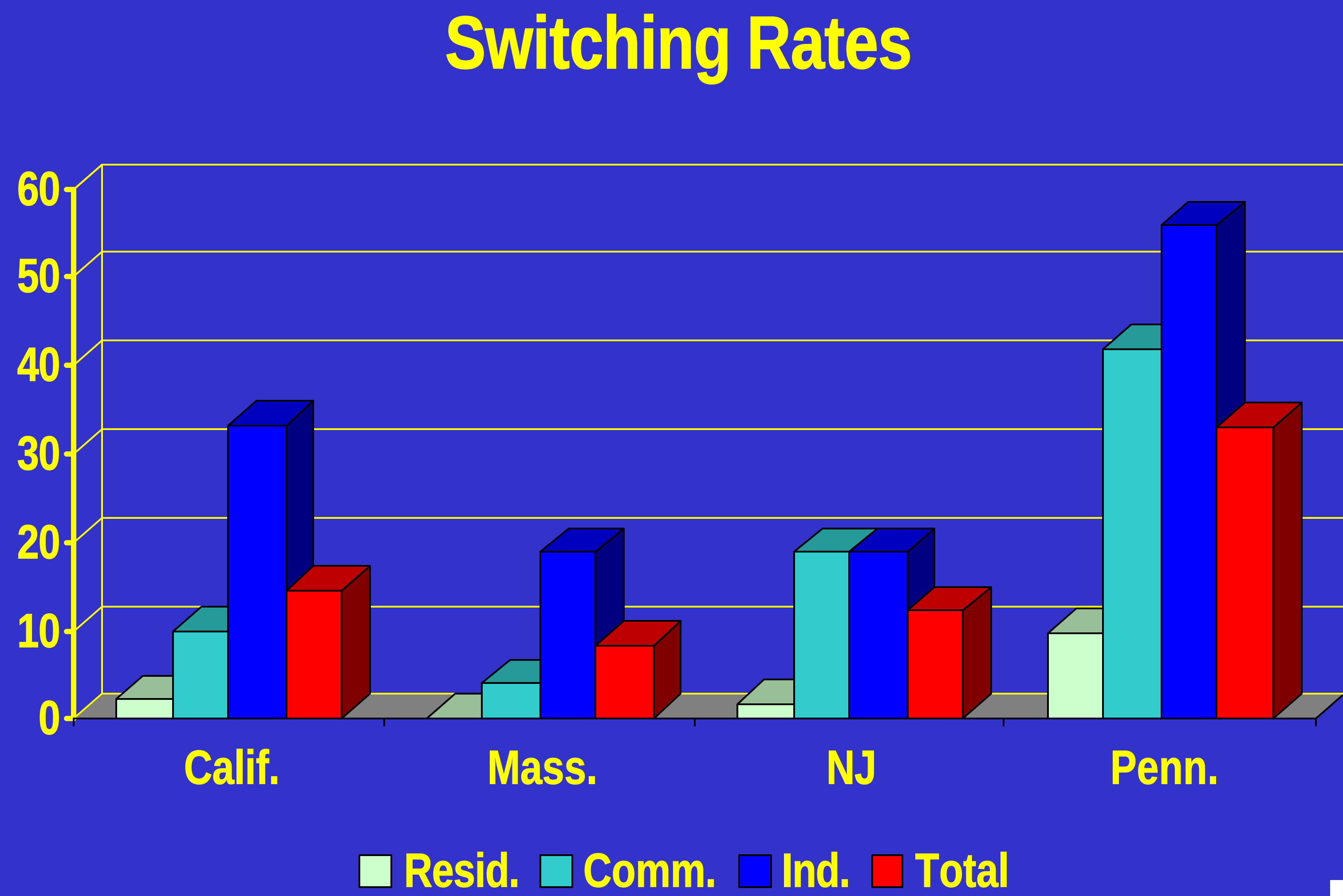
Different Goals -- Different Results



Supplier Economics

- **Niagara Mohawk example**
  - Acquisition cost $50 per customer
  - Average residential bill for commodity = $16/mo or $192/yr
  - Average retail competitive margin about 5%
  - Average annual profit = $9.60/yr
- **Break even for a supplier = 5+ years**
- **Average telecom customer length of stay = 2 years**
- **Competitive suppliers must bring value!**
  - Lower prices, green power, other value added services

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Balancing Conflicting Goals

- ***Protect Consumers***
  - Price caps, price reductions

    vs.
  - Below market rates killed the retail market
- ***Promote Competitors***
  - *"Jump Start"* with high price-to-beat

    vs.
  - Tripling incumbent's rates
- **How do we promote an efficient market?**
- **What is politically correct?**

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Safety Net Service
or Provider of Last Resort (POLR)

Consumer Protection is the Lynchpin

Consumers Need A Safety Net

- **Consumers are demanding Safety Net Services**
  - Continuity of service for those who choose not to switch
  - A place to land when a supply relationship ends
  - Rates that provide some shield from volatile wholesale markets
  - A provider of last resort when the markets don’t meet their needs

Safety-net service price is key to retail market evolution

- **POLR obligations riskier than anticipated**
  - Customers returning when market prices increase or suppliers leave market
  - Utilities must take back customers even at a loss!

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Importance Of Safety Net Services

- **SNS can determine if <u>consumers</u> have adequate protection during the transition**
  - A place to stay, a place to return to, a rate that is stable
- **SNS can determine if <u>suppliers</u> go bankrupt**
  - Suppliers can bear immense risks w/o commensurate returns
  - Buying from volatile wholesale markets – selling under a cap
- **SNS can determine if <u>competitors</u> will enter or leave market**
  - Fixed rates during high wholesale markets discourage retail entry, encourages retail exit – *<u>creates wealth transfer not efficiency gains</u>*

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Importance Of Safety Net Services

- **SNS can determine if <u>legislators</u> move forward or backward**
  - SNS can provide a comfort level to move forward

- **SNS can determine if <u>long term goal</u> of lower prices will be met**
  - Link between encouraging competition and consumer protection
  - Competitive retail markets can drive down the costs at wholesale

- **SNS can determine if <u>demand for new retail risk management services</u> arises**
  - Fixed rates can dull customer interest in using price-responsive, demand-reduction technologies
  - Prevent necessary demand elasticity from developing in spot market

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SNS Not Really Understood

- **POLR was the “foot in the door” utilities wanted**
- **POLR was the “political cover” that legislators wanted**
  - Legislators/regulators wanted to protect consumers and get reelected
- **POLR was a “free option” consumers and marketers want**
  - Customers might be able to return without penalty to get low rates
  - Marketers could send customers back when wholesale prices increased

We found POLR <u>is</u> a “risky” business -- that many avoid

Never quite sure who will be your customers

Never quite sure how much power to buy

Never quite sure to sign long-term contracts

Buying from volatile wholesale markets

– selling under capped retail rates

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Demand Response

California could have been avoided if consumers saw real costs and responded!

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Getting Demand Reductions

- **Expose residential customers to some of the marginal cost of power**
- **May need to push larger more experienced customers out from under long term price protection**
  - They have experience with energy supply procurement and risk management
- **Reconsider problematic rate freezes**
  - Fixed by legislature for a long period of time
  - Often no relationship to competitive market prices
  - May provide short-term “protection” with real longer-term high cost consequences
  - Allows “gaming” which doesn’t create efficiency gains but merely wealth transfers

Price Response Demand Needed

- **Demand response can yield significant benefits:**
  - As a mechanism to avoid purchasing high cost energy
  - By providing a “hedge” for POLR/SNS obligations
  - By mitigating “market power”
  - As a potential new business opportunity
  - As a method of dealing with emergency situations & increasing reliability
- **Demand response may become a multi-billion $ market**
  - The “savings” numbers are large!
  - New opportunities to create customer value
- **FERC developing new national policy**
  - FERC and RTO control of demand response programs
  - Develop regional, standardized markets
  - FERC public meeting February 14, 2002, GigaNOPR

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Demand Response - Challenges

- **Cost recovery**
  - How will states deal with RTO/Congressional imposed program costs?
- **Delivery interference**
  - How will RTO programs be coordinated with current utility programs – especially those designed to help control distribution loads?
- **Supply interference**
  - How will RTO or other third party load reductions affect existing supplier contracts?
- **Customer confusion**
  - Who should customers call to identify demand response opportunities?
- **Rate caps**
  - Why would customers participate in the absence of upside risk?

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A Viable EEI Strategy

- **Get market design right**
  - Vague rules, incomplete policies promote uncertainty
- **Adopt ratemaking / pricing that promote infrastructure enhancement**
  - Adequate generating capacity
  - Robust and secure transmission and delivery systems
- **Fix retail market problems**
  - Address Provider of Last Resort issues
  - Support price responsive demand
- **Enhance energy security by integrating cyber, physical and operations security**
- **Restore confidence in accounting and financial reporting**

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