The False Fix in Fixed Charges
How the fixed charge and cost-shift debate diverts attention from the real issues

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Agenda

- Arguments for Fixed Costs
- 5 Common Myths that Justify Fixed Costs
- Why Fixed Charges Are Bad for Everyone
- The Utility Business Model and the Real Challenges
- The Need for Fundamental Reforms
2 Main Arguments for Fixed Charges

1. Most utilities’ costs are fixed

2. Solar customers don’t pay their fair share

These arguments rest on myths and misunderstandings of the regulatory process.

Source: APS
Myth 1: Cost Shifting = Not Paying Fair Share

In fact:

1. “...[California] NEM accounts appear to be paying slightly more than their full cost of service.”
   
   Source: CPUC

2. LED light bulbs can shift costs as much as distributed solar

   Source: Catherine Wolfram, Energy Institute at Haas

Question: How sustainable is current model if LED bulbs can shift costs?
Myth 2: Cost Subsidization Is Wrong

In fact:

1. Cross subsidies are built into the regulatory model*
   
   - E.g., wealthier and urban households often subsidize other users


Question: How do we define “fairness,” and are we defining it correctly?
Myth 3: Retail Rates Reflect Costs or Market Rates

In fact:

1. Retail rates reflect average costs
2. Actual costs vary by the time and location on the distribution grid
3. Peak demand drives fixed costs
4. Rates are designed based largely on value judgments

Questions: Why not focus on how fixed costs are incurred? What are the criteria for the value judgments?
Myth 4: Rate Design Should Focus on Cost Recovery

In fact:

1. Regulation is not simply about aligning rates with costs.
2. Regulation is about aligning compensation with performance.

Principles of Rate Design*

1. Minimal volatility: Protect ratepayers from unpredictable rate/bills
2. Revenue Adequacy: Ensure fair cost recovery
3. Ratepayer Fairness: Minimize cross-subsidies
4. Efficiency: Incentivize efficient consumption and investment

* James C. Bonbright, Principles of Public Utility Rates, 2nd ed., 1988,
Myth 5: High Fixed Costs Justify Fixed Charges

In fact:

1. Industries with high fixed costs regularly earn revenues through variable charges
   - E.g. oil and gas, airline, car manufacturing, commercial real estate, etc.

2. Utilities are not guaranteed profits
   - Fixed costs include utilities’ authorized ROE
   - Guaranteed fixed cost recovery = guaranteed ROE and more waste

More fixed charges will encourage wasteful investment and wasteful consumption
Why Fixed Charges Are False Fix

Fixed charges:
1. Do not address how fixed costs are incurred, only worsen problem
2. Undermine pricing signals for efficient consumption and investment by all grid users
3. Make pricing less fluid when pricing needs to be more dynamic
4. Shift costs/risks from utilities and shareholders to all ratepayers
5. Obscure fundamental problems with utility model
   – Waste spiral
   – Spiral of irrelevance

Utilities have long pushed for fixed charges, but have been more forceful lately…
The Real Utility Business Model

Utilities earn returns by building power capacity, *not* by selling energy
- Energy (kWh) sales is a “taxing” mechanism that pays for the investments and the associated ROE

Utilities are in a bind:
1. Past investments may become stranded (“death spiral”)
2. New opportunities in DER may be off-limits

Right to fair cost recovery $\neq$ Right to expand business
The Real Problem And The Wrong Debate

1. U.S. electricity demand growth 1950-2040
   - Long-term problems with revenue growth & excess capacity

2. New England (ISO-NE) Peak-to-Average Demand Ratio
   - NEM is a red herring

2. Solar DG boom started in 2007; only ~0.6% penetration

Source: U.S. Energy Information Administration
<table>
<thead>
<tr>
<th>DERs</th>
<th>Market RTO/ISO</th>
<th>Reg. Customers</th>
<th>Wholesale Retail</th>
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<td>Solar</td>
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### Traditional Grid Architecture & Disruption from DER

- **Power Generation**
- **Transmission Network**
- **Distribution Network**
- **Ratepayers**
Transitioning to a Networked Grid

Questions: Who gets to finance, build, and operate the new grid? How does everyone get paid?
### Regulatory Framework Badly Trails Market Trends

<table>
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<th>20TH CENTURY GRID</th>
<th>21ST CENTURY GRID</th>
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<tr>
<td>Reliable, safe, &amp; least-cost</td>
<td>Clean, resilient, &amp; consumer choice</td>
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<tr>
<td>Centralized hierarchy &amp; monopoly</td>
<td>Decentralized networks &amp; P2P</td>
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<td>Ratepayers</td>
<td>Customers &amp; prosumers</td>
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<td>Cost-plus pricing to provide basic commodity</td>
<td>Value-based pricing for differentiated services</td>
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<td>Inflexible “waterfall” development</td>
<td>Modular “agile” development</td>
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<td>Rigid rates designed by <em>government</em></td>
<td>Flexible prices determined by <em>markets</em></td>
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NEM fight is ultimately about the future design of the grid.
Short-Term Fix: Improve Pricing & Grid Transparency

1. Minimum bills

2. Smarter rate design
   - E.g., time-varying rates
     - LBNL study suggests TVR can improve cost recovery and accelerate solar adoption

3. Greater visibility into needs of distribution grid
   - Energy Institute at Haas study shows significant capacity value of DG solar at select locations
Long-Term Fix: Extend Wholesale Market Mechanisms

Wholesale Markets (RTO/ISO)
- Generators & Traders
- Ancillary Service Providers

Distribution Utilities

Consumers
- Solar
- DER

Independent Distribution System Operator
- Solar
- DER
- Retailers
- Consumers

At every substation (or other jurisdiction boundary)

Aggregated DER

Market-based control
Regulation-based control
Recalibrate Fundamental Regulatory Principles

- The ultimate question: what is right for the public, not what is right for utilities or solar?
- Free markets are best able to allocate resources where they are most valued
- Beware of false choices: universal access to electricity is *not* incompatible with market forces
- Fair compensation for past investments does not mean profit opportunities on future investments
- Stifling regulation can lead to balkanization of the grid and defection
Broader Participation in a Distributed Grid Benefits All

- More services meet diverse needs on demand – “the internet of things”
- Protection against outages
- Less use of ratepayer funds for grid investments
- Lower-cost for all, including those without DER

“The grid increasingly is...a multi-directional network interconnecting millions of consuming devices, flexible distributed energy resources including DG, and back-up generation.”

– Edison Electric Institute
Appendix
A Distributed Grid Can Mitigate Climate Change

Carbon Emissions by Sector

1. Electrification of Transportation

2. Cleaner Sources of Electricity to Power all Sectors

Source: EPA