A Changing Environment for Distcos

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Between now and mid-century, the world of electric power will likely undergo a fundamental transformation, due to SmartGrid, carbon, and conservation.

In likely states of the world in 2030 - 2050, IOUs’ and Distcos’ optimal position and role will be very different from today.

Incremental changes from the current system may not lead to desirable or stable end-states.

Utilities’ actions over next few years play a critical role in which end-state is most likely to occur and what role utilities will be able to play.

Start the planning at possible states in 2030 or so and work backwards to identify critical steps needed to succeed in those states.

Managing the revolutionary change will likely require new forms of interaction between utilities, regulators and customers.
The utility world in 2030 will be very different

♦ Traditional supply-driven, hierarchical structure replaced with more bi-directional, network-interactive architecture
  • Perhaps only 70% of supplies come from upstream
  • 30% from DG and DR, not necessarily owned by them
♦ DG, DR, and energy efficiency lead to much more demand elasticity
  • Cost-recovery risky (sensitive to changing up-and downstream costs)
  • Per kWh pricing less viable
♦ By mid-century, power generation will need to be essentially carbon-emissions free
  • Distco may be expected to contract for green power, if merchants not forthcoming due to risks (volatility, regulatory uncertainty)
  • Distco at risk for unpopular high costs, including CO₂ itself
  • Little or no mitigation from transition allowances by 2030
♦ Technology will transform load shapes and transmission/distribution
What are utilities’ comparative advantages?

Distcos ought to be the entities most capable of fulfilling much of the new industry vision:
- Best knowledge of marginal costs, which determine B/C of new techs
- Good long-term customer relations, credibility, familiarity
- Access to low-cost financing (via ability to pass on costs!)
- Longevity – will outlast developers seeking quick entry and exit

But utilities are often culturally and organizationally handicapped in some important ways:
- Not very customer-specific in service design: plain vanilla, average-cost approach
- Absent new rate-making terms, have a disincentive to pursue conservation or distgen
- Not necessarily able to benefit investors with tax incentives
- May lack some of the IT technical skills or capacity
**Scope for activity under regulatory constraints**

Are utilities going to be active players, or passive platforms for 3rd parties?

<table>
<thead>
<tr>
<th>Competition</th>
<th>Rationale</th>
<th>Potential Examples</th>
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</thead>
<tbody>
<tr>
<td><strong>Monopolistic Position</strong> (Only utility allowed to provide certain services)</td>
<td>Regulated entity provides some Smart Grid monopoly services, e.g., due to operational synergies with existing T &amp; D</td>
<td>Utility ownership (ratebasing) of DG, DR, and some efficiency assets</td>
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<tr>
<td><strong>Competitive Coexistence</strong> (Regulated utility competes with 3rd party providers)</td>
<td>Regulatory umbrella does not give utility unfair advantage (most likely outcomes here)</td>
<td>ESCOs, utilities and IT providers in same retail space</td>
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<tr>
<td><strong>Fully Competitive</strong> (Utility can compete only through unregulated entity)</td>
<td>Regulatory umbrella perceived as giving unfair advantages to utility</td>
<td>Unregulated affiliate provides services; utility shares customer-info with 3rd parties</td>
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Evolutionary or revolutionary strategy?

An incrementalist/passive approach to adaptation may not be sufficient, or low risk, for utility success:

- Possible erosion of customer (hence financial) base, and decline of sales and ratebase under BAU approach
- Possible distco cost penalties if upstream costs much higher or more volatile than expected, or reliability poor
- Possible lack of critical skills for customer-centric, differentiated services

The strategic problem is not just choosing the right technologies and new systems, but answering:

- What functions to perform vs. leave for others?
- What to outsource lease vs. buy? Capital structure?
- How/how much to differentiate customers and services?
- What skills to have, and how to adjust your service criteria?
Harmonizing interests: marginal costs

Decision-making based on marginal costs gains importance:
- Distcos and customers involved in anticipating and mitigating the full supply-chain, long-run costs and environmental impacts
  - Not all these costs are incurred by the distco, or immediately avoidable
- ESCOs will offer services against utility tariffs, not actual avoidable costs

Two alternative approaches:
- Distco sets efficient prices that make avoidable tariffs a surrogate for direct, marginal cost information
  - Makes the “invisible hand” more effective (not blind!)
  - These prices could be complex, and not welcome by customers or ESCOs
- Distco designs or allows services using privately held marginal cost information

Utility could end up playing the role of a mini-RTO in its retail service territory
- Overseeing compatibility of 3rd party actions with system security
- Providing new ancillary and backup services
- Imposing participation rules/restrictions on entry
Forward and backward-looking planning needed

**Forward Looking Strategy**
1. Define possible product offerings
2. Measure against competitive strengths
3. Assess profitability of strong candidates
   - to customers
   - to utilities
4. Harmonize regulated and unregulated services
5. Ensure compatibility of LT end states

**Backward Looking Strategy**
1. Define possible end states
2. Select a few plausible end-state scenarios
3. Assess optimal competitive position in each
4. Understand critical path for each
5. Identify overlapping paths
6. Design most robust path across end-states

**SWOT analysis**

**Competitive advantage**

**Compatibility**
Backward-Looking strategy formulation

A wide range of disparate conditions could obtain in 2030 – some good, some bad – but the realization can be at least partly influenced/improved proactively.

1. Define a few, consistent, plausible end-state scenarios from combinations of many possible developments.
   • Technology
   • Regulatory
   • Competition
   • External

2. Assess needed capabilities and regulations for strong viability in each end-state.
   • Competitive position, value-added
   • Critical success factors affecting profitability, risks
   • Compatible regulatory rules

3. Work backward to identify, then compare and contrast, critical path for each.
   • Identify overlapping elements on paths
   • Design most robust path across end-states

4. Pursue near-term implications, especially where actions useful in many states.
Different potential end states require different paths, but some elements may be common to several ends.
Utilities not likely to have competitive advantages in simple retailing of energy products.

- Lack of scale, distribution channels, marketing expertise
- Better to focus where distco can overcome barriers and customer inertia more readily than competitors
- Need to be careful about the regulated/unregulated boundary
  - Likely push-back if trying to be active as regulated entity in non-monopoly areas – cross-subsidies, unfair competition, etc.
  - But synergies with traditional services may provide justification for extension of regulatory franchise protections – e.g. private IT capacity
- Some areas may be more profitable than others
  - Interesting targets will attract competitors who contest utility involvement
  - Self-cannibalization may be better than being eaten by a third party!
- New unregulated products may need defensive support, e.g. eliminating rates that attract artificial cherry-picking
Potential downstream strategies must consider competition and regulatory environment.
More complex, long-term products and services likely a better fit

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<th>Increasing cost and complexity</th>
<th>OnBill Financing</th>
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<td>DG Microturbine</td>
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Increasing "depth" of customer side penetration

- **Green**: Possibly good fit
- **Pink**: Not likely good fit
- **Red**: Likely poor fit

The Brattle Group
Implications for near term

Some actions should be taken soon to lay the foundation for an efficient and effective role for utilities in the future. Likely candidates:

♦ Introduce more efficient price/rate signals **before** they are solving a crisis – else entrenched interests too strong

♦ Avoid renewables contracts with long-term fixed-price indexation

♦ Develop back-up charges and system management protocols sufficient for large-scale penetration of 3\textsuperscript{rd} party techniques

♦ Evaluate how/whether to obtain/control IT capacity (own, lease, outsource).

♦ Expand utility skill-set for customer-oriented business