

Session 5 – Utility as a Service



Introduction to Energy as a Service (EaaS)

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What is “X as a Service”

- Third-party supplies all services.
- Service is “on demand” (little or no customer investment required).
- Payments are recurring by contract, subscription, etc. rather than a one-time purchase with ongoing O&M.
- Offerings are continually upgraded by the provider, not the user.
- Service is provided “centrally” through a single “platform.”
- Delivery is “on-demand” at the request of the user.

X as a Service Examples

- Transportation as a service: Uber.
- Software as a service: Windows 10, Office 365, DropBox, QuickBooks on-line.
- Payroll as a service: ADP.
- Computer security as a service: Norton, etc.
- Lighting as a service (back to the future)
 - Initially “gas lighting” as a service
 - Later lighting as a service provided by US Electric Light and Swan Electric Light (later Edison-Swan and eventually, General Electric)
 - Now LED lighting as a service (Philips contract with DC Metro) – essentially shared savings program

Energy as a Service - Conceptual



Graphic of Energy as a Service Components Offered by Edison International Subsidiary - Edison Energy

Energy as a Service – Deconstructed

EaaS includes services DOD facilities routinely contract for usually on a fee-for-service, one-off basis;

- O&M
 - Building and facility – Operation, maintenance, and “emergency” repair
 - Back-up generator
 - Distribution system
- Utility Services
 - Energy efficiency
 - Energy commodity supply
 - Demand management/market engagement
- Modernization (Investment in new and existing assets for the long term)
 - Distribution system efficacy and controls
 - Sustainable generation (renewables + 2-4 week supply capability)
 - Buildings (LEED, net zero, ...)

EaaS as a Change in Energy Contracting

- **Single provider/contract** for all aspects of energy service
- **Long-term contract** with long-term cost perspective; ~LCC
- Contractor as a “partner” with mutual interests
 - Service “bundle” likely to cost more than “business as usual,” but can’t be too much more or contract scope will be reduced.
 - Efficiencies expected to offset higher costs
 - Service built around a long-term investment and operating **Plan**
 - Energy reduction
 - Streamlined contracting
 - Coordination among partner subcontractors and with the **Plan**
- Technology innovation factored into the Plan and investment strategy
- Holistic performance metrics like those for a utility (XX reliability at YY cost) rather than piecemeal fee-for-service contractors; DOD accepts completed project, writes check.

DOD's Challenge – A Sufficiently Long Contracting Authority

- FAR 41 Utility Services Agreement – 10-year term, but tied to utility “obligation to serve” and customary continuity of contract.
- Utility Privatization (UP) – Government owned assets conveyed to third party as an owner required to invest own funds in safety and reliability improvements. Combo of 50-year term and utility agreement for service from private owner.
- PPA using USC 2922a authority – Up to 30 years, but only covers “energy produced” from on-site facility.
- ESPC/UESC – Up to 25 years with O&M, but reverts to government ownership after “payback” period.

EaaS is a Next Step in Energy Consumer Evolution

Industry's relationship to customers continues to change as customers become more active in serving their own needs and desires.

1. Traditional utility model: Balance demand with generation
2. Integrated planning (IRP) model: Balance demand with generation and non-gen options at least-cost
3. IRP+: Include renewables, energy efficiency, and other non-cost factors
4. Customer choice: Let "market" balance demand and supply (no longer least cost)
5. DER/Demand management model: Consumers become producers
6. EaaS: Customer level IRP, including microgrid owner/operator

Any Questions – The Speakers will Answer

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