US Energy Service Company Industry: History and Business Models

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Overview of Presentation

• US ESCO industry evolution: Five phases
• Business models in each phase
• Financing models in each phase
• Factors that forced change to next phase
• Lessons learned
US ESCO Industry: Five Phases

• Pre-1985: The Beginning of Large-scale Energy Efficiency (EE)
• 1985-1995: Early ESCo experience
• 1995-2000: Consolidation and Growth
• 2000-2004: Setbacks
• 2004 – present: Growth and new services
Beginning of EE: pre-1985

- Federal government mandates utilities to provide energy conservation

- Business model: ESCOs provide services
  - Energy audits, arranging contracting, etc.

- Finance model: fee for service
  - Utilities pay ESCOs for services
  - Negotiated fee per audit

- M&V model
  - Services delivered, not energy savings
Early ESCo Experience: 1985-1995

Industry Size $\approx$ $1$ Billion in 1995

- Utility regulators make conservation part of long-term utility resource plans
- Utilities solicit bids for power plants and “energy efficiency power plants”
- ESCOs target industrial customers
  - Large savings per customer
- Utilities pay 80-100% of project costs
  - Cheaper than new power plants
- M&V Model
  - Emulate utility metering ($\geq 15\%$ of project cost)
Early ESCO Experience: 1985-1995 (cont’d)

• ESCOs also sell projects to public sector
  – Schools, hospitals, military bases
• Customers afraid of new technologies
• Business model
  – Entrepreneurs develop service packages
• Finance model
  – Shared savings – ESCOs provide capital
• M&V Model
  – ESCO-proprietary spreadsheets
Shared Savings Financing

- ESCO finances project & assumes **debt obligation** on balance sheet
- ESCO assumes **project performance risk** and **credit risk**
- Lender assumes **credit risk**, but so does the ESCO, because they rely on the customer passing on savings to repay the loan
Causes of Industry Change

• Specialized financiers making money
  – Other financiers wanted to enter business
• Customers more comfortable with technologies
  – Saw less need for high cost of shared savings
• Utilities wanted to enter business
  – Wanted to provide full service (energy + efficiency)
• Project development costs escalated
  – Federal projects: $250,000 for 30 months
• ESCOs could not expand financing
  – Entrepreneurs needed balance sheets
Industry Changes

• New Business Model
  – Entrepreneurs purchased by large companies
  – Did not want long-term liabilities

• New Finance Model
  – Guaranteed savings replaces shared savings
  – Banks and specialized finance companies

• New M&V Model
  – NAESCO, ASHRAE, US DOE created IPMVP
Guaranteed Savings Financing

- Customer finances project & assumes **debt obligation** on balance sheet
- ESCO assumes **project performance risk** & guarantees that savings will be sufficient to cover customer’s annual debt obligation
- Lender assumes **credit risk**
Consolidation and Growth: 1995-2000

Industry Size ≅ $2 Billion in 2000

- Federal government implements ESPC
  - Savings mandates and facilities needs
- State governments authorize Performance Contracting
  - Facilities needs in state and local government
- ESCO industry continues to consolidate
- Finance industry matures for ESPC
- IPMVP protocol works for all parties
“Guaranteed Savings” Contracts Dominate

- Third party financier is more qualified in credit assessment than ESCOs;
- Guaranteed savings keeps ESCO balance sheet clear of project debt;
- Customer has incentive to resolve ongoing project issues, because they bear ongoing debt service obligations.
Setbacks, 2000-2004

Industry Size ≈ $2 Billion in 2004

- Utilities decide they don’t like ESCOs
- Enron collapse poisons market for large industrial customers
  – One financing vehicle discredited
- Federal ESPC legislation expires
- Federal government downgrades energy efficiency – not a policy but a “moral virtue”
Growth and New Services

Industry Size ≈ $5 Billion in 2011

• ESCOs focus on public buildings
  – Energy savings mandates
  – Pay for capital improvements with energy savings
  – Long payback horizons

• ESCOs add new services
  – Distributed generation + Renewable energy
  – Build/own operate generation facilities
  – Street lighting, water meters, etc.

• Utility spending on efficiency continues to grow
  ≈ Cheaper than new generation plants
Growth and New Services (cont’d)

• Resistance from government customers
  ≈ 75% of market remains
  – Turnover of managers in key positions
  – Continuous education required

• Finance industry changes affect ESCOs

• Pending financial regulations
  – Accounting treatment of leases
  – Financial industry reforms
Lessons Learned in US

- ESCO industry is complex and difficult
- ESCO financing limits growth
- Standard EM&V required for financiers
- Government mandates necessary but not sufficient to insure success
- Business-driven innovation is necessary
- US public sector focus may not translate to Chinese situation
Thank you

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