

The Second U.S.-China Energy Efficiency Forum

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 ≅ \$1 Billion in 1995

- Utility regulators make conservation part of longterm 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 (≥ 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

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- 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

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"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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