Environmental Energy Technologies Division Lawrence Berkeley National Laboratory

Current Size and Remaining Market Potential of U.S. ESCO Industry

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OUTLINE

- **ESCO Industry Study Motivation**
- **U.S. ESCO Industry Size and Growth Projections**
- **Revenue Shares**
- **Remaining Market Potential**
- **Other Interesting Findings**
- **Conclusion and Future Research Activities**

ESCO INDUSTRY STUDY MOTIVATION

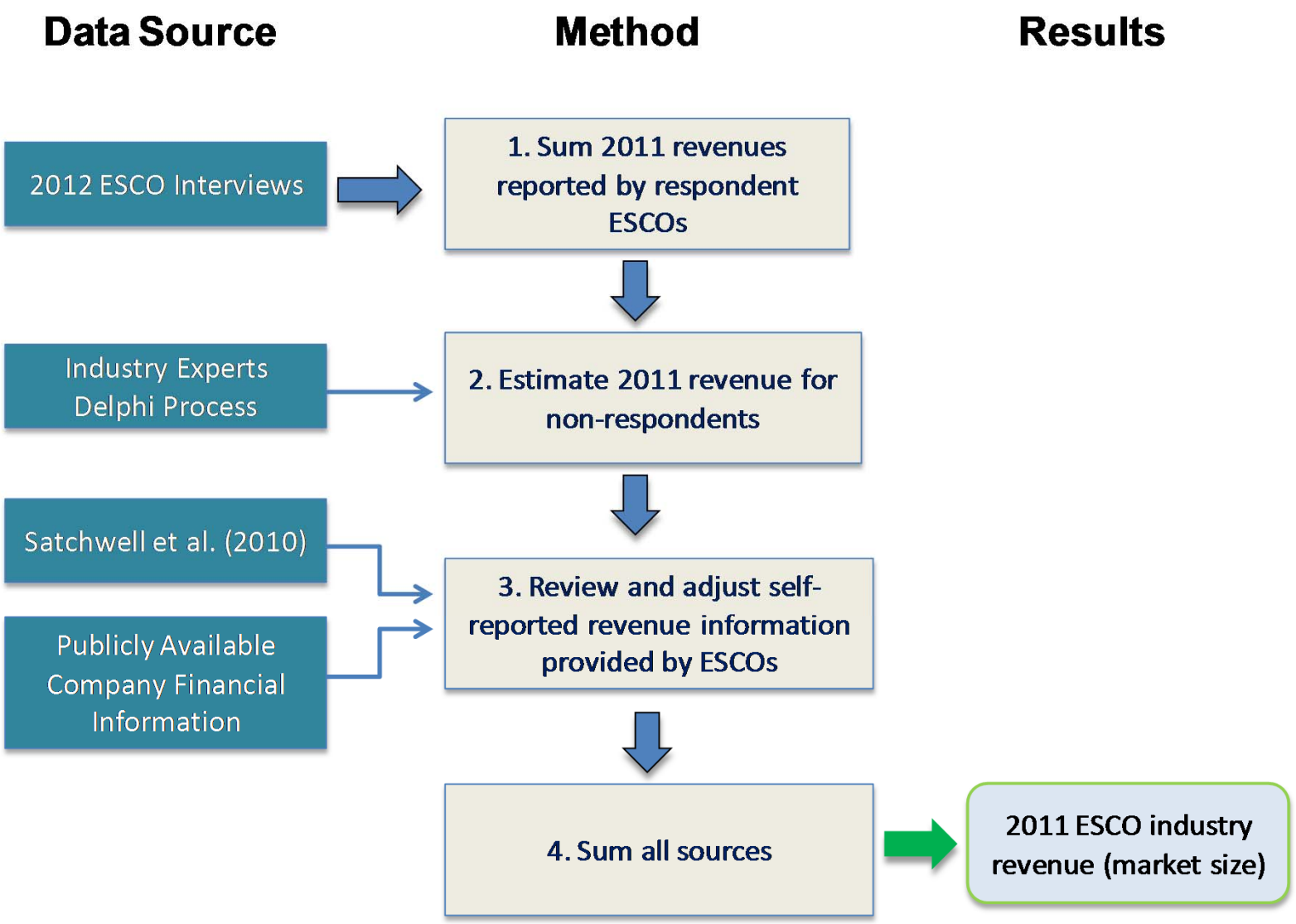
Project Objectives:

- Track and analyze ESCO industry and market trends: industry revenues, market activity, changes in industry structure; remaining market potential

Approach:

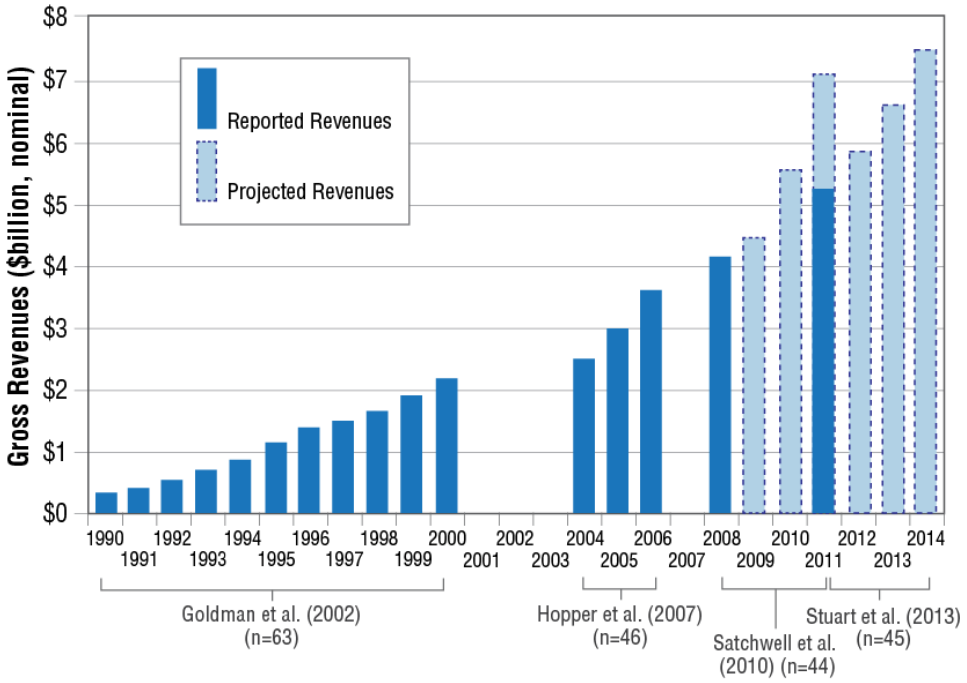
- Similar "top-down" approach as previous LBNL research, but also included remaining market potential estimate
- Discussions facilitated by LBNL/NAESCO with companies using the following sources:
  - NAESCO membership list;
  - DOE-qualified ESC list; and
  - Qualified performance contractors on state lists
- Response rate:
  - 2012: **78%** (35 out of 45 ESCOs); all large ESCOs responded
- Topics:
  - Current revenues by market segment, contract type, and technology;
  - Anticipated revenues in next 3 years;
  - Impact of U.S. recession, incentives, tax credits, and financing vehicles; and
  - Market penetration from 2003-2012

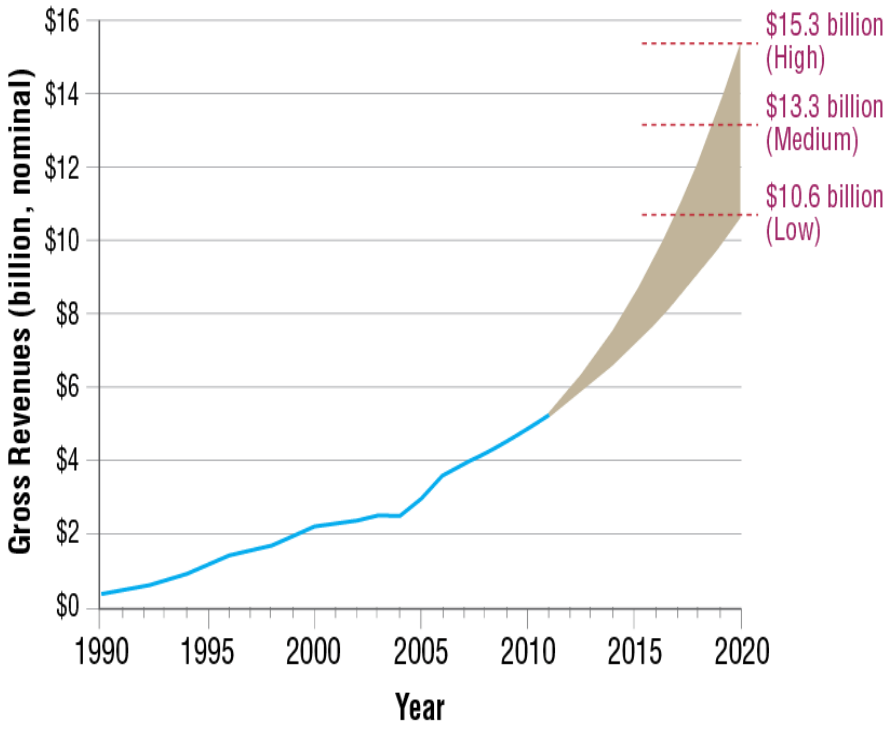
METHOD: INDUSTRY SIZE



INDUSTRY SIZE: CURRENT AND PROJECTED

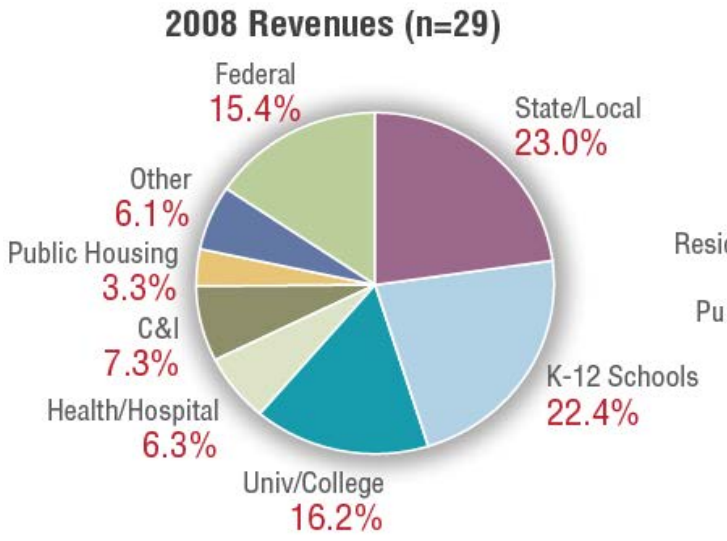
- **The ESCO industry continued to grow at a steady pace--despite the onset of a major recession--reporting revenues of approximately $5.3 billion in 2011.**

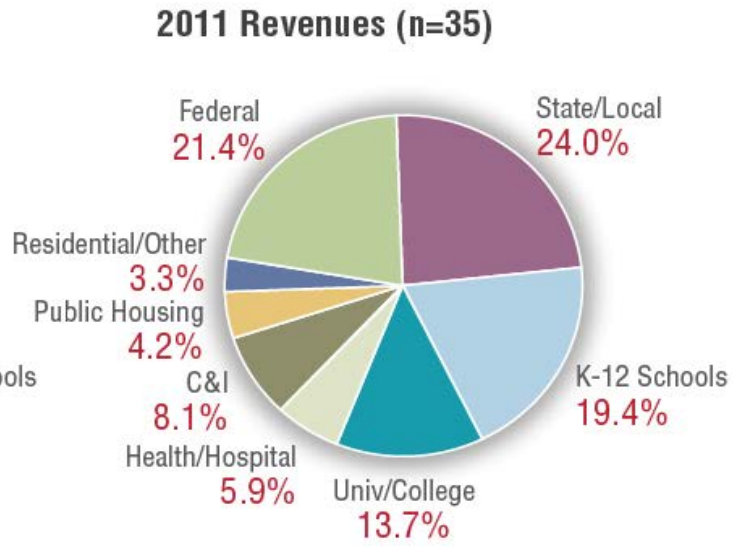




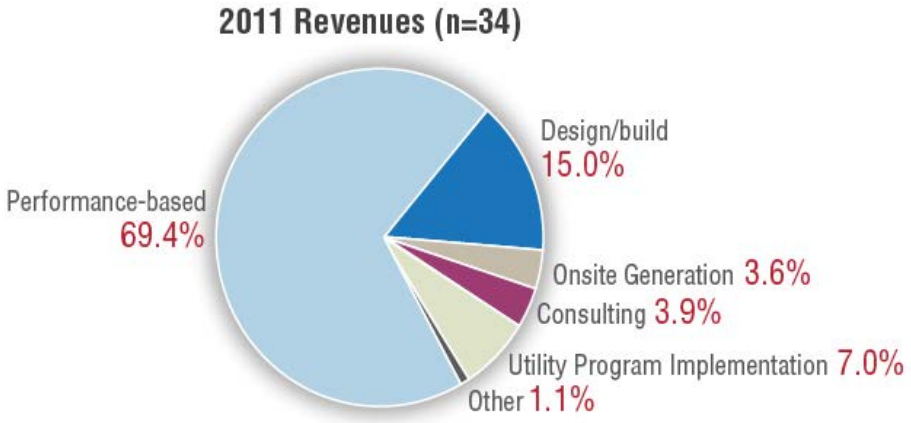
- **We project that the ESCO industry will more than double in size from ~$6 billion (2013) to $11-$15 billion (2020).**

2008 & 2011 REVENUE SHARES





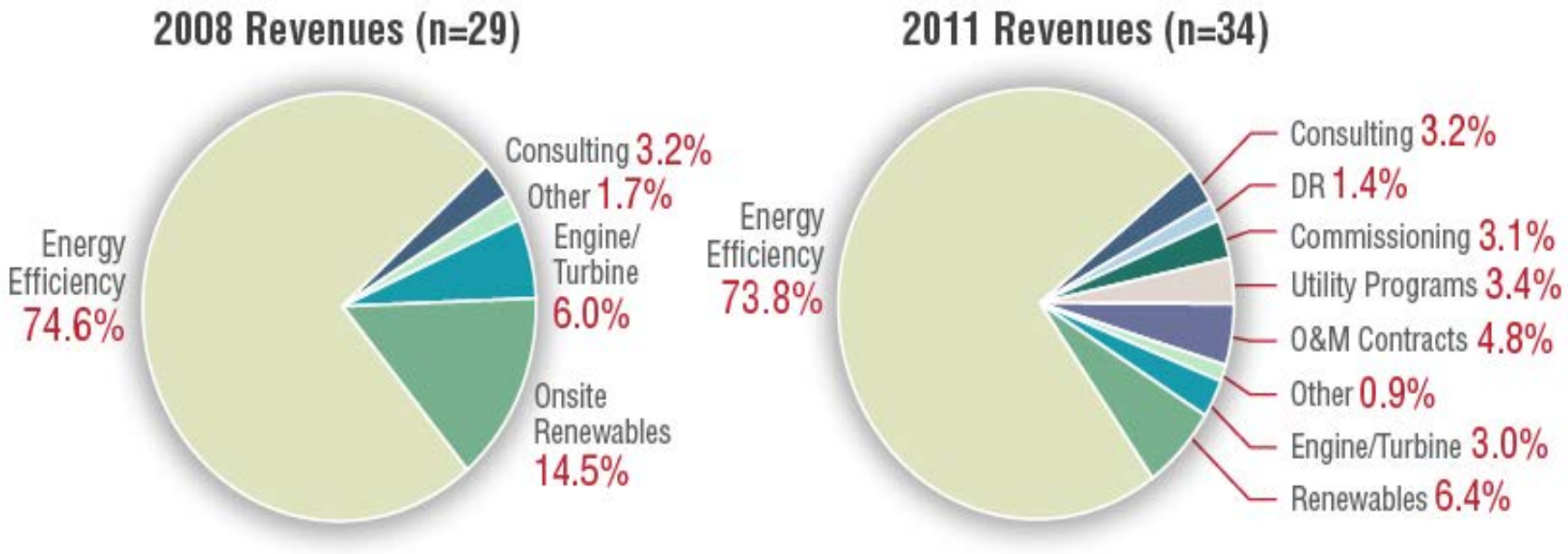
- **~85% revenue from "MUSH"+ Federal market**



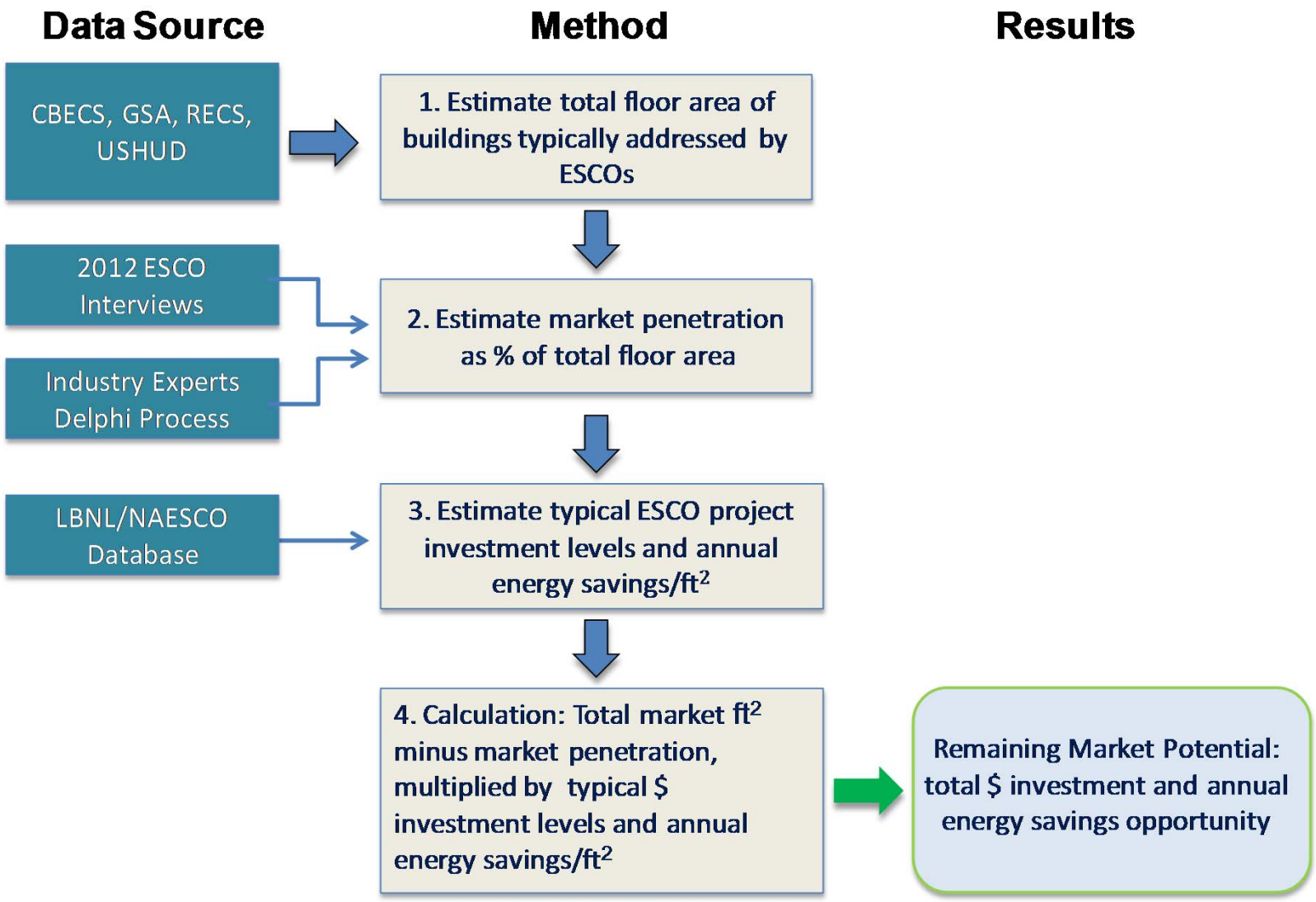
- **~70% of 2011 revenue from performance-based contracts; 15% from design/build.**

2008 & 2011 REVENUE SHARES (CONT.)

- Onsite generation and renewable energy share decreased from 2008-2011
- EE-related activity accounted for ~75% of revenue



METHOD: REMAINING MARKET POTENTIAL

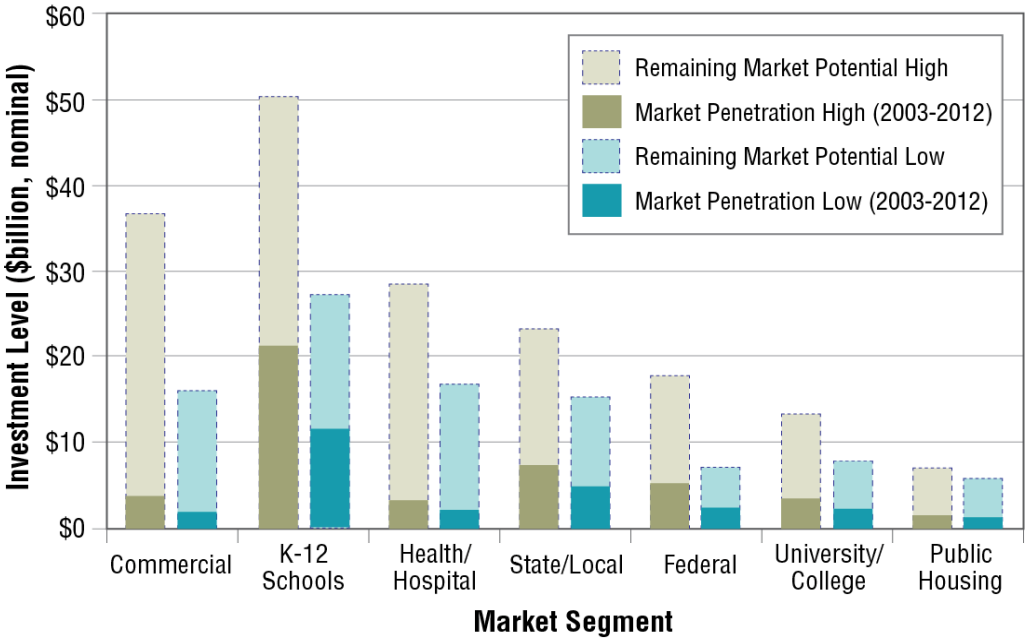


MARKET PENETRATION (2003-2012)

- **Market penetration of performance contracting is highest in the K-12 schools sector and lowest in the C&I and healthcare sectors…**

Market Segment	U.S. Census Region				
	Northeast	Midwest	South	West	U.S.
K-12 Schools	45%	40%	42%	30%	**42%**
State / Local	39%	30%	30%	45%	**30%**
Federal	27%	28%	25%	27%	**28%**
Universities/Colleges	25%	25%	23%	30%	**25%**
Public Housing	20%	15%	18%	18%	**18%**
Health/Hospitals	10%	10%	15%	15%	**10%**
Private Commercial	10%	6%	8%	9%	**9%**

REMAINING MARKET POTENTIAL



Market Segment	Low Estimate	High Estimate
K-12 Schools	$15.8	$29.4
Health/Hospital	$15.0	$25.6
Private Commercial	$14.4	$33.5
State/Local	$10.6	$16.3
Public Housing	$4.7	$5.7
Universities/Colleges	$5.7	$9.8
Federal	$4.9	$12.7
Total	**$71.2**	**$133.0**

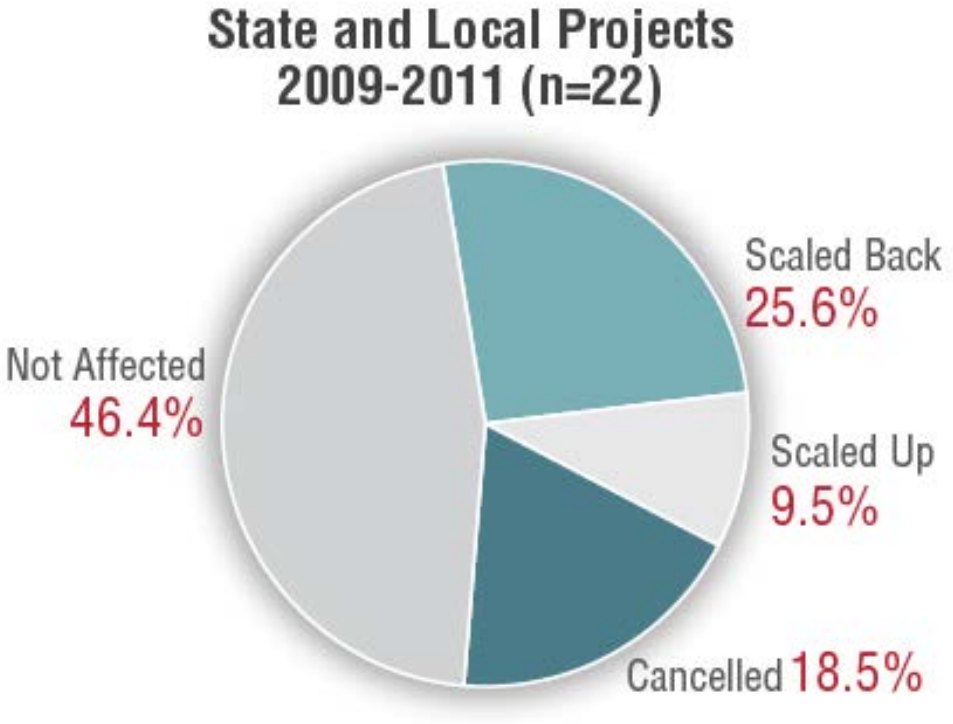
- **Remaining investment potential in facilities typically addressed by this industry ranges from ~$71 to $133 billion.**

- **Questions remain about the economic potential of these markets and the accuracy of this estimate…**

FINANCIAL CRISIS IMPACT: STATE/LOCAL

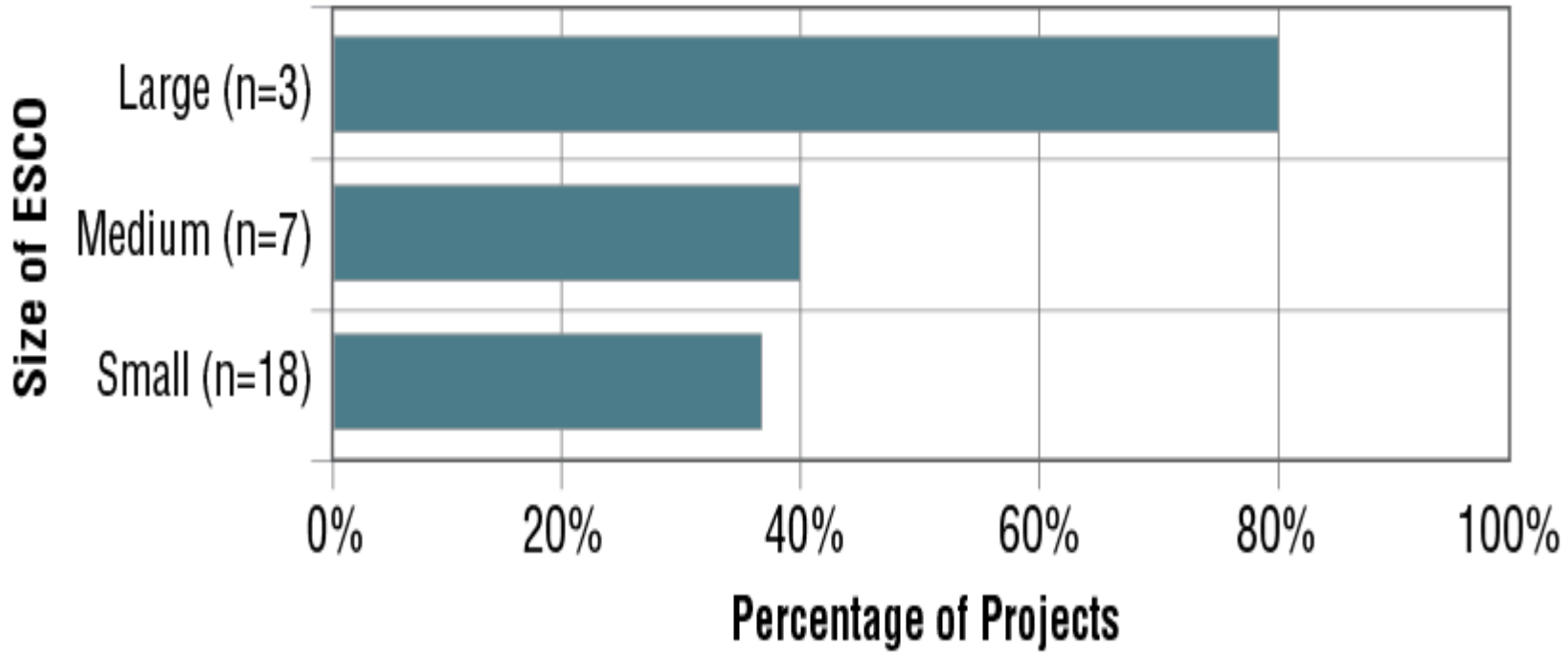
- **ESCOs reported % of planned *state/local government* projects affected by either the U.S. financial crisis or debt policy from 2009-2011**

- **44% of projects cancelled or scaled back**
- **Nearly half unaffected**
- **~10% scaled up**



% OF PROJECTS USING THIRD-PARTY ADVISORS

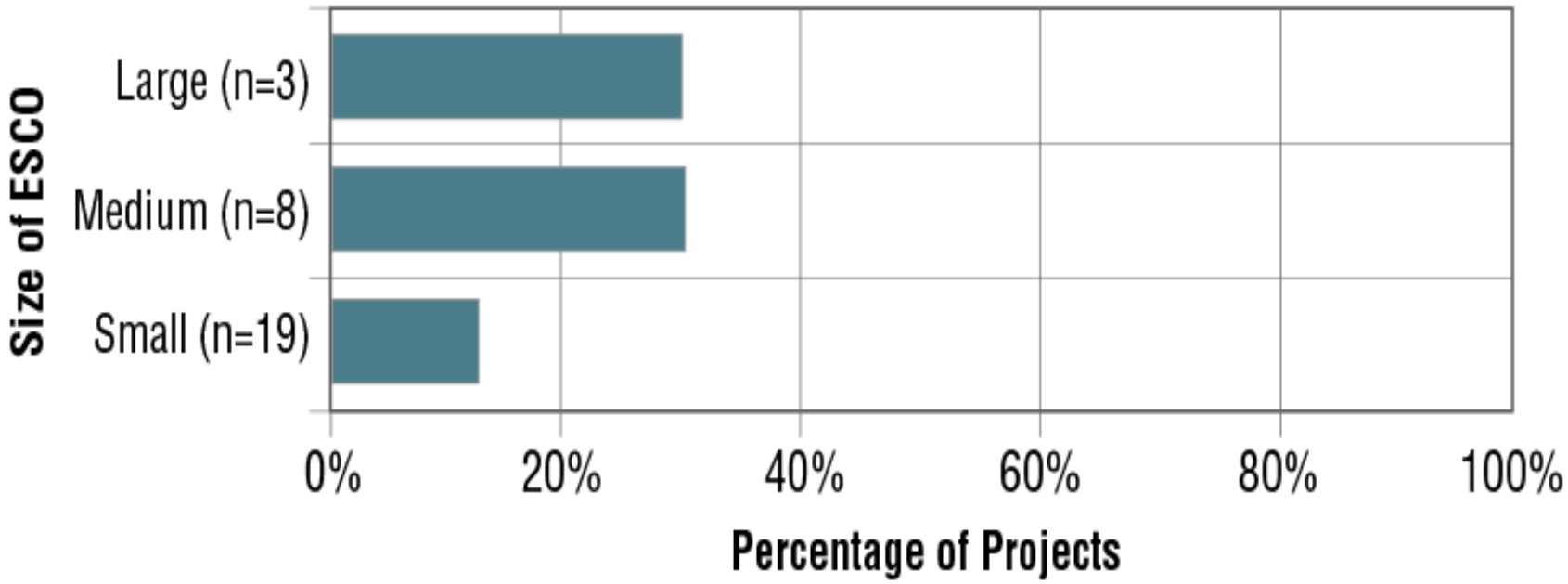
In what percentage of your [company's] projects during the past three years did the customer use third party professional financial advisors (e.g., bond counsel or financial consultant)?



- **Customers of larger ESCOs tend to use third-party financial advisors more frequently than small-to-medium sized ESCOs.**

% OF PROJECTS USING STIMULUS

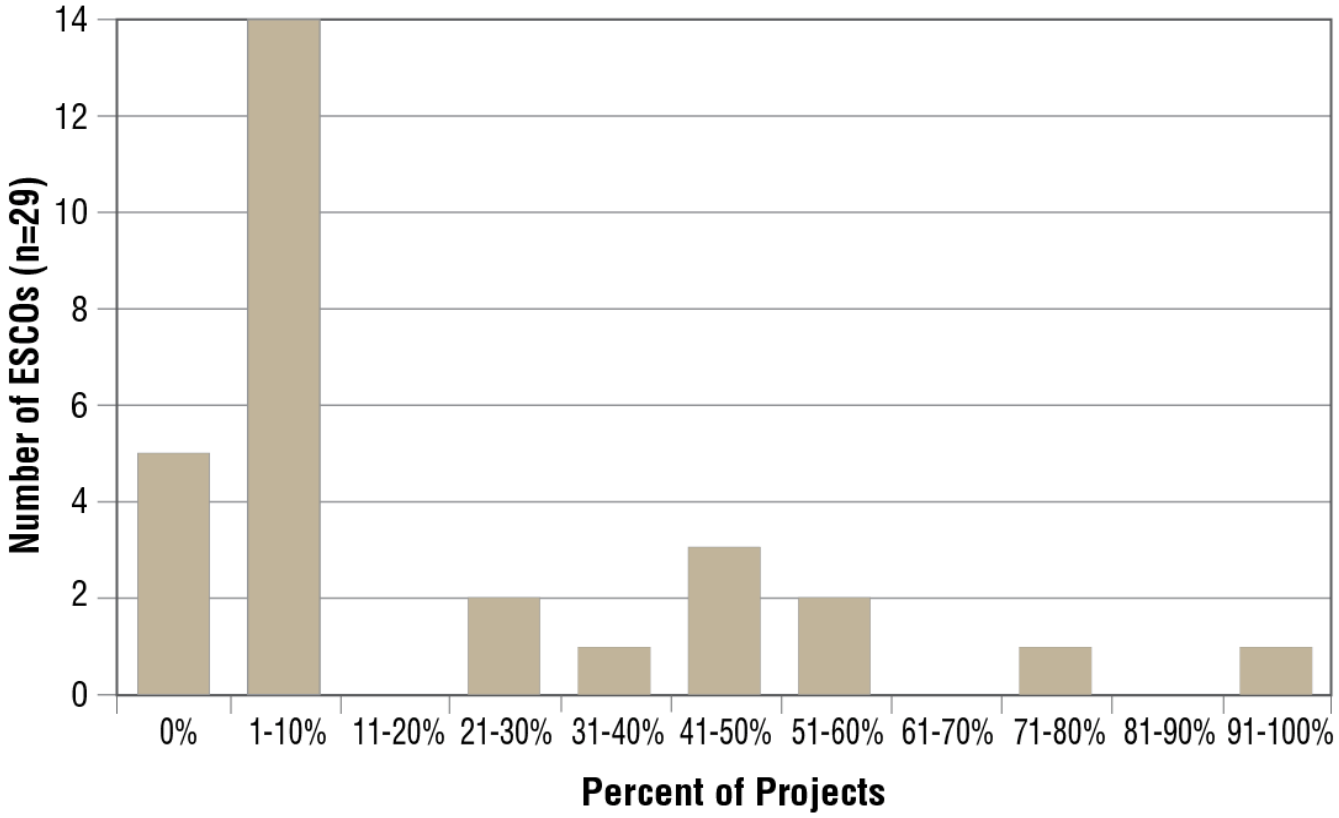
What percentage of your [company's] projects have used federal stimulus programs including: ARRA grants, other direct grants, revolving loans, QECBs, QZABs, etc. during the past three years?



- **11 medium and large respondent ESCOs reported that ~30% of their projects in the last three years relied on some type of federal program; 19 small ESCOs reported ~15%**

% OF PROJECTS USING TAX CREDITS

What percentage of your [company's] projects have used local, state, or federal tax credits (e.g., Section 179d, Investment Tax Credit, Production Tax Credit) during the past three years?



FINANCING VEHICLES

- **40% of *federal projects* used 100% cash (i.e., appropriations);**
- **Most *K-12 schools* employed either a state/local bond issuance or a lease arrangement; and**
- **State or local bonds and tax-exempt municipal leases were most common in *state/local government* projects.**

Market Segment	Cash	Partial Cash	Term Loan	State/Local Bond	Lease	Other	Total
Federal (n=19)	40%	7%	0%	3%	19%	31%	100%
State/Local (n=24)	15%	14%	16%	31%	23%	0%	100%
K-12 Schools (n=25)	7%	8%	18%	34%	28%	5%	100%
Univ/College (n=23)	20%	16%	22%	22%	19%	0%	100%
Health/Hospital (n=16)	33%	16%	28%	1%	21%	1%	100%
Public Housing (n=6)	17%	3%	5%	4%	58%	13%	100%
C&I (n=16)	50%	4%	23%	2%	5%	16%	100%

U.S. ESCO INDUSTRY IN A GLOBAL CONTEXT

Country	Estimated ESCO Industry Size ($ million)	Source
China	$4,000-$7,000	Cahill and Bertoldi (2013)
United States	~ $5,300	Stuart et al. (2013)
Germany	~$3,900-$5,200	Cahill and Bertoldi (2013)
France	~$4,000 - $5,000	Marino et al. (2010)
United Kingdom	~$320	Cahill and Bertoldi (2013)
Italy	~$600	Cahill and Bertoldi (2013)
Spain	$390-$500	Cahill and Bertoldi (2013)
Switzerland	~$170-$300	Marino et al. (2010)
Denmark	$180-$190	Cahill and Bertoldi (2013)
Japan	~$374	Murakoshi (2013)
Romania	~$50	Marino et al. (2010)

Note: Cahill and Bertoldi (2013) are preliminary results.

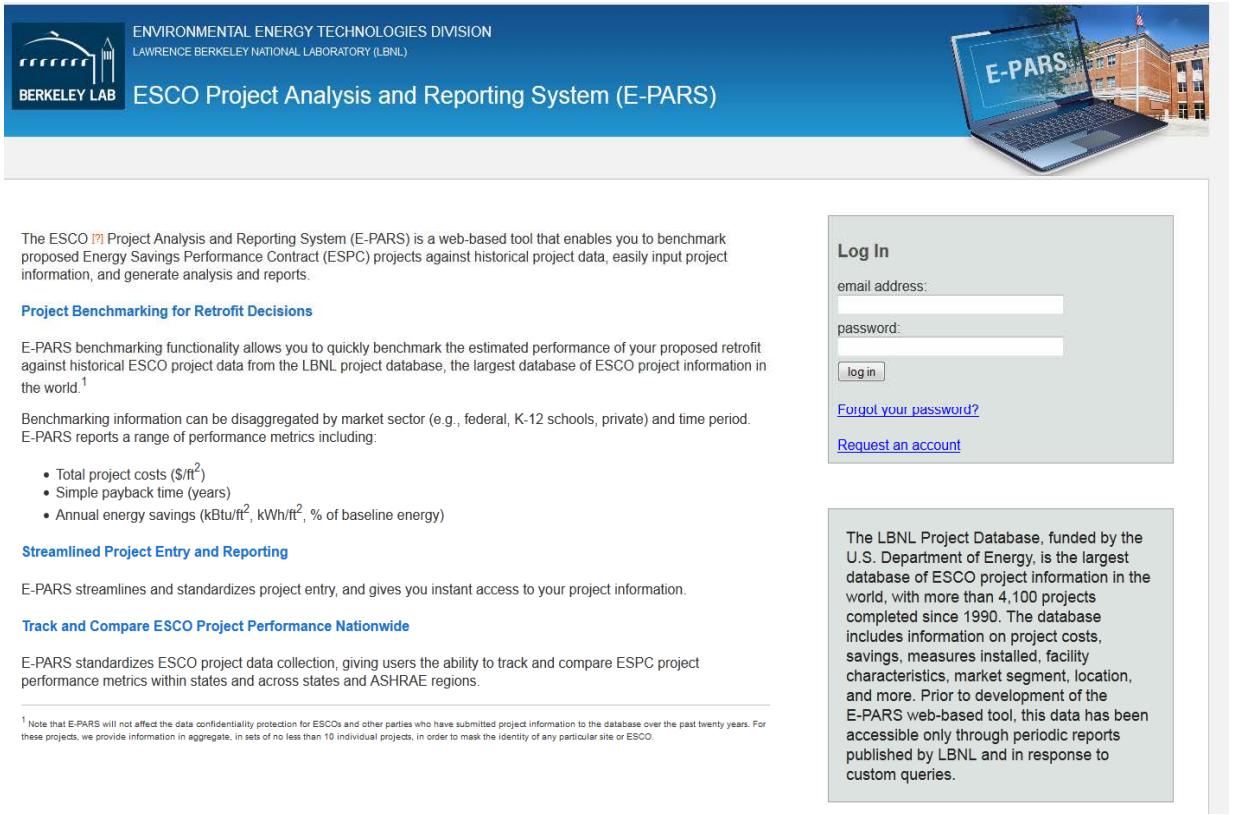
- **U.S. ESCO industry is comparable and probably larger than French and German industry; Chinese ESCO industry is growing rapidly and may soon surpass U.S. ESCO industry size**
- **Definition of ESCO and revenue reporting practices vary among countries**

CONCLUSION

- **Industry grew steadily from 2008-2011 ($5.3 billion)**
- **We anticipate that industry will double-to-triple in size by 2020 ($10.6 to $15.3 billion)**
- **Remaining market potential of ~$71-133 billion**
- **Revenue share from onsite/renewable generation is decreasing**
- **ESCO customers use a variety of financing vehicles**

FUTURE RESEARCH

- **Ongoing database development activities**
- **Research into non-energy benefits of projects**
- **Ongoing technical assistance activities**



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