



# Sustainable Places – TOPAs WS

## Market Opportunities

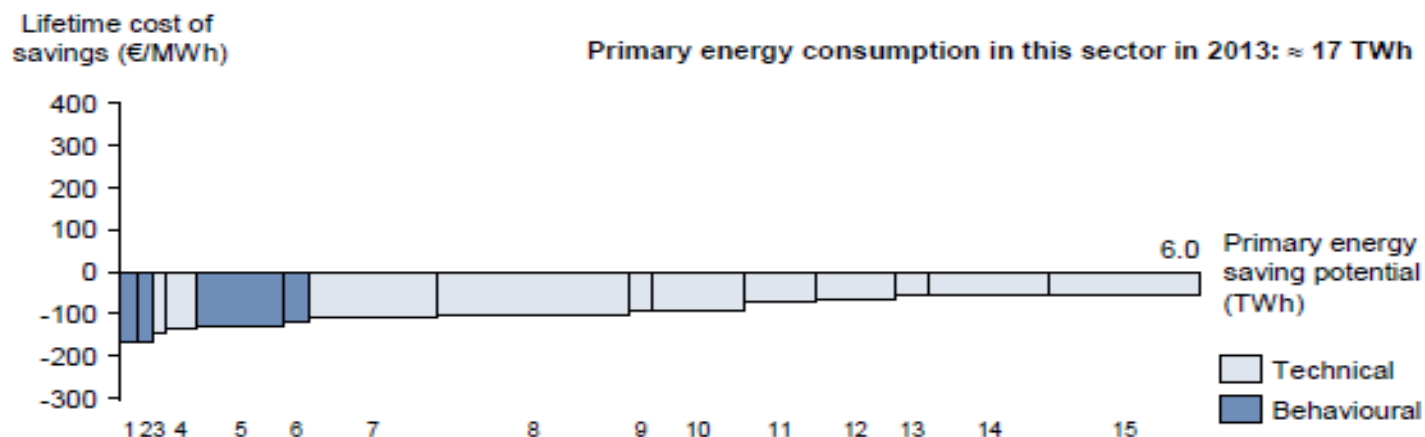
Fergal Purcell, Energy Solutions

Sustainable Places, 27<sup>th</sup> June 2018





# The Energy Efficiency Opportunity



Measure	PE saving (TWh)	Measure	PE saving (TWh)
<b>Total technical measures</b>	<b>5.15</b>	14. Energy efficient glazing	0.67
3. Energy efficient appliances - Refrigeration	0.07	15. Heat pump	0.82
4. Draught proofing	0.17		
7. Roof insulation	0.71	<b>Total behavioural measures</b>	<b>0.80</b>
8. Energy efficient lighting with lighting control	1.11	1. Turn off lights for extra hours	0.10
9. Cavity wall insulation	0.12	2. Enable standby features on all PCs and monitors	0.08
10. More efficient air conditioning	0.51	5. Reducing room temperature	0.49
11. More efficient boiler with heating control	0.39	6. Reducing hot water use	0.13
12. Solid wall insulation	0.44		
13. Energy efficient appliances - Office equipment	0.19	<b>Total</b>	<b>5.95</b>

Unlocking the Energy Efficiency Potential (SEAI, 2016)



# Barriers to Investment in energy efficiency

1. Split incentives (eg landlord – tenant)
2. Lack of resources/expertise (ECM selection, business case for investment, project management, commissioning and validation)
3. Lack of budget for investment
4. Investment horizon



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**ESCO Addresses Barriers**



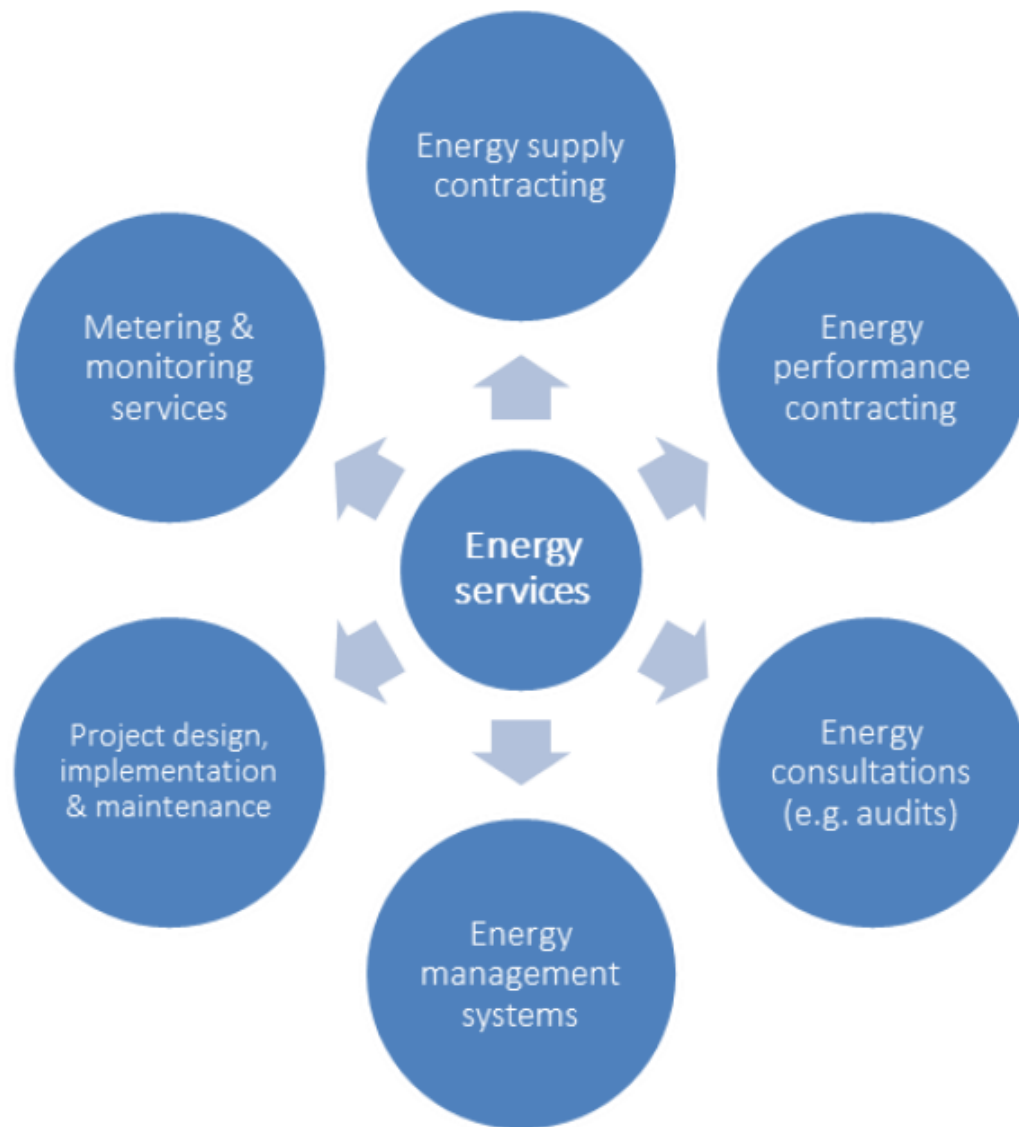
# What is an ESCO

- EED - *'energy service is delivered on the basis of a contract and in normal circumstances has proven to result in verifiable and measurable energy efficiency improvement'*
- More useful to consider companies that provide energy services rather than ESCOs – includes ESCOs, FM, utilities, building automation...
- For purpose of TOPAs market opportunities, an ESCO is an entity that offers energy management services to building operators
  - Possibly integrated with utility, BAS or FM offering



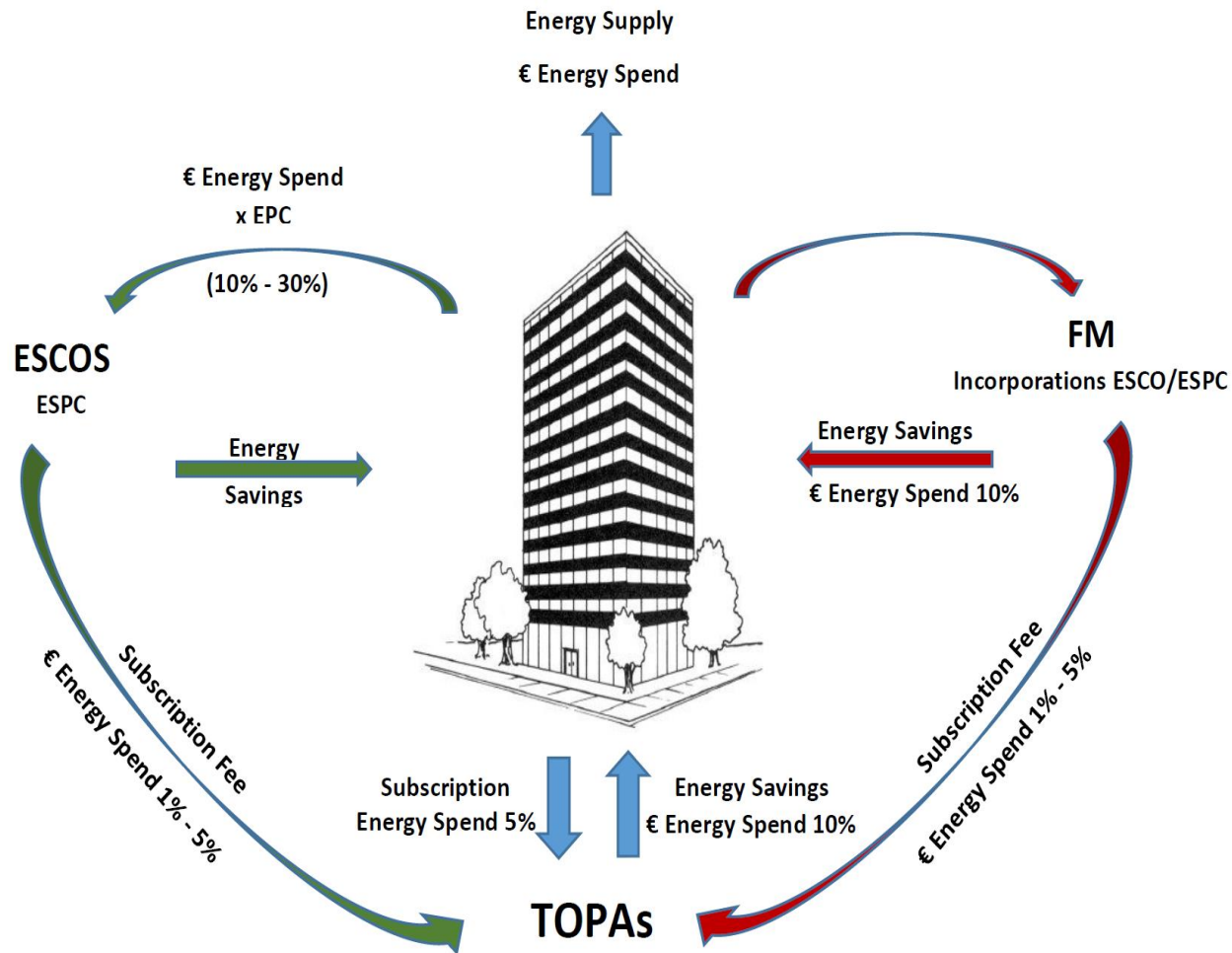
# Energy Efficiency Services

EC JRC ESCO Report 2017





# Energy Performance Contract





# Market Drivers

- UNFCCC & Paris Accord.
  - *Intended Nationally Determined Contributions (INDCs).*
  - *Ambitious targets from EU & BRICs*
  - *EU 40% reduction by 2030 and 80-95% by 2050*
- Energy Costs
- Corporate Social Responsibility
- Legislation and regulation
- Standardisation





# EU ESCO Association / JRC List



EU JRC – 100+ in '[ESCO Library](#)'

- Dalkia
- Cofely
- Johnson Controls
- Schneider Electric
- Siemens
- Mitie
- Plus local/national ESCOs



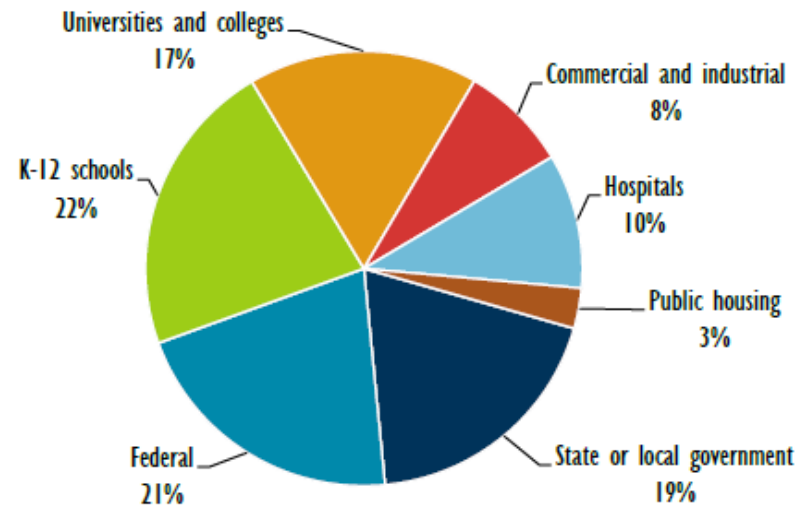
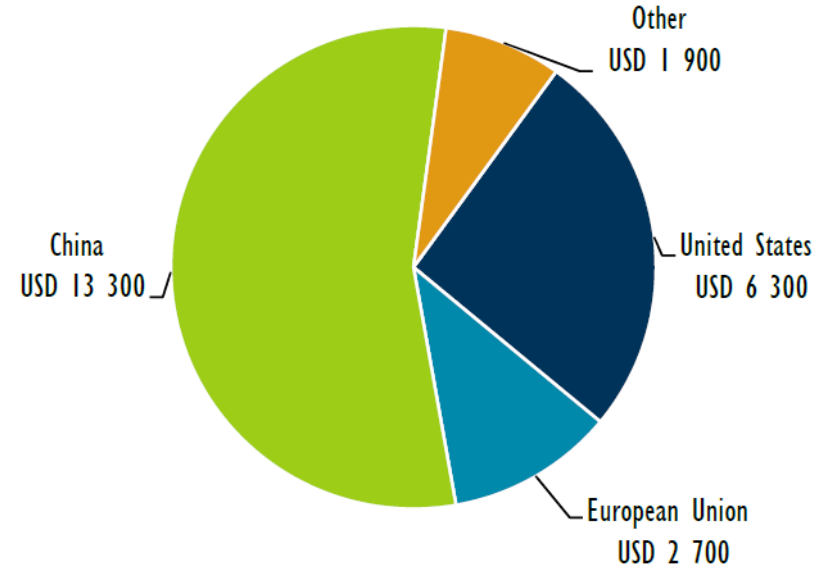
Hydronic Engineering





# Market Actors and Markets

- ESCO
  - EU JRC ESCO market 2017 - ESCO/EPC providers:
    - EU €2.4 billion
    - US \$6.3 billion
  - IEA 2015 - \$24 billion
- BMS/BAS
  - BMS - \$4 billion (BCC Research)
  - Leading companies (Honeywell, Siemens, Johnson, Schneider)



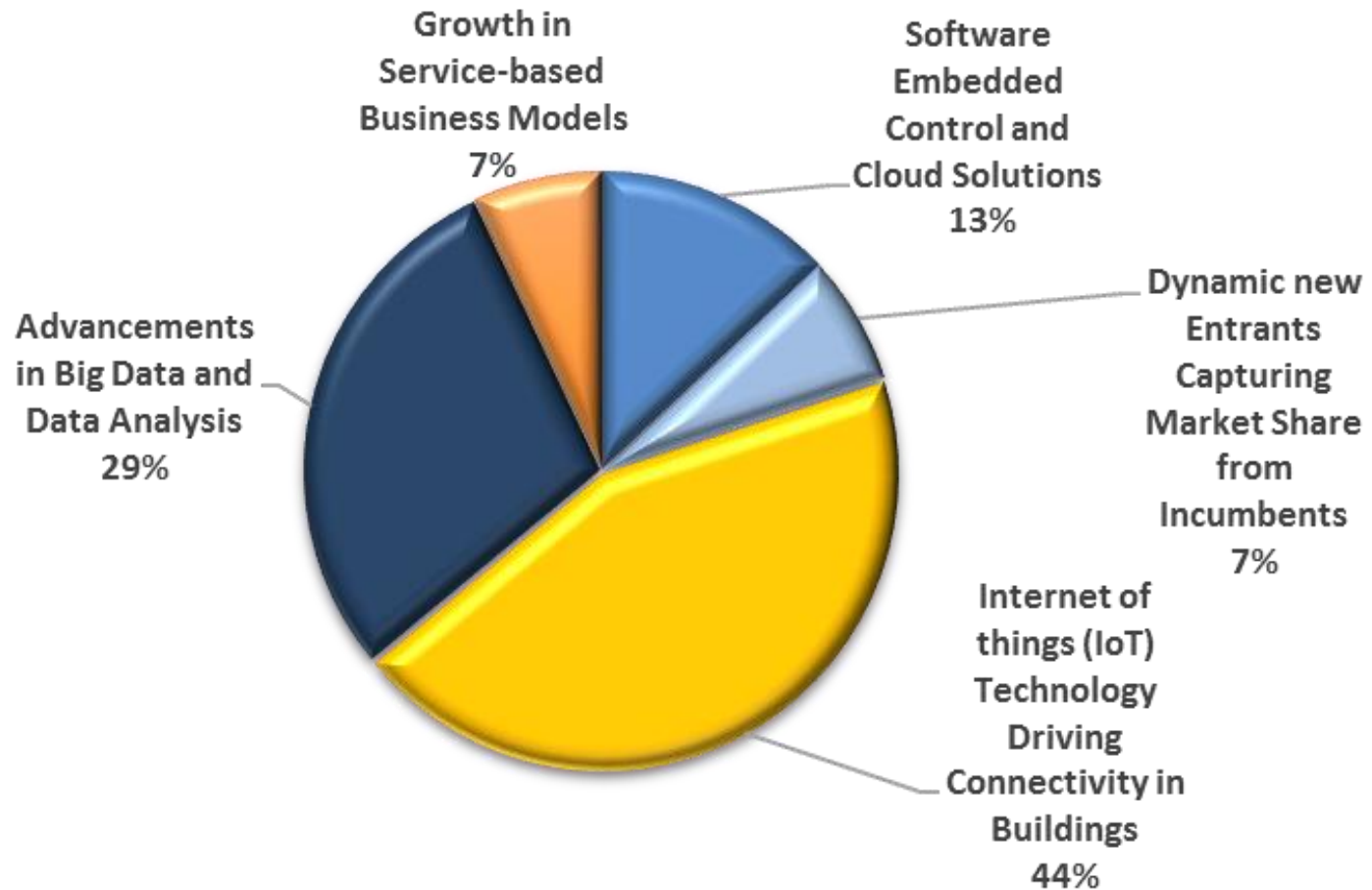


# Market Actors and Markets

- EMS/EMIS
  - \$12 billion
  - Honeywell, Siemens, Yamatake, Johnson, Ingersoll rand
- Facilities Management
  - Trend towards Integrated FM services (property management, facilities management and energy management)
  - Projected US\$ 1 trillion by 2025 (Fro 2016c)



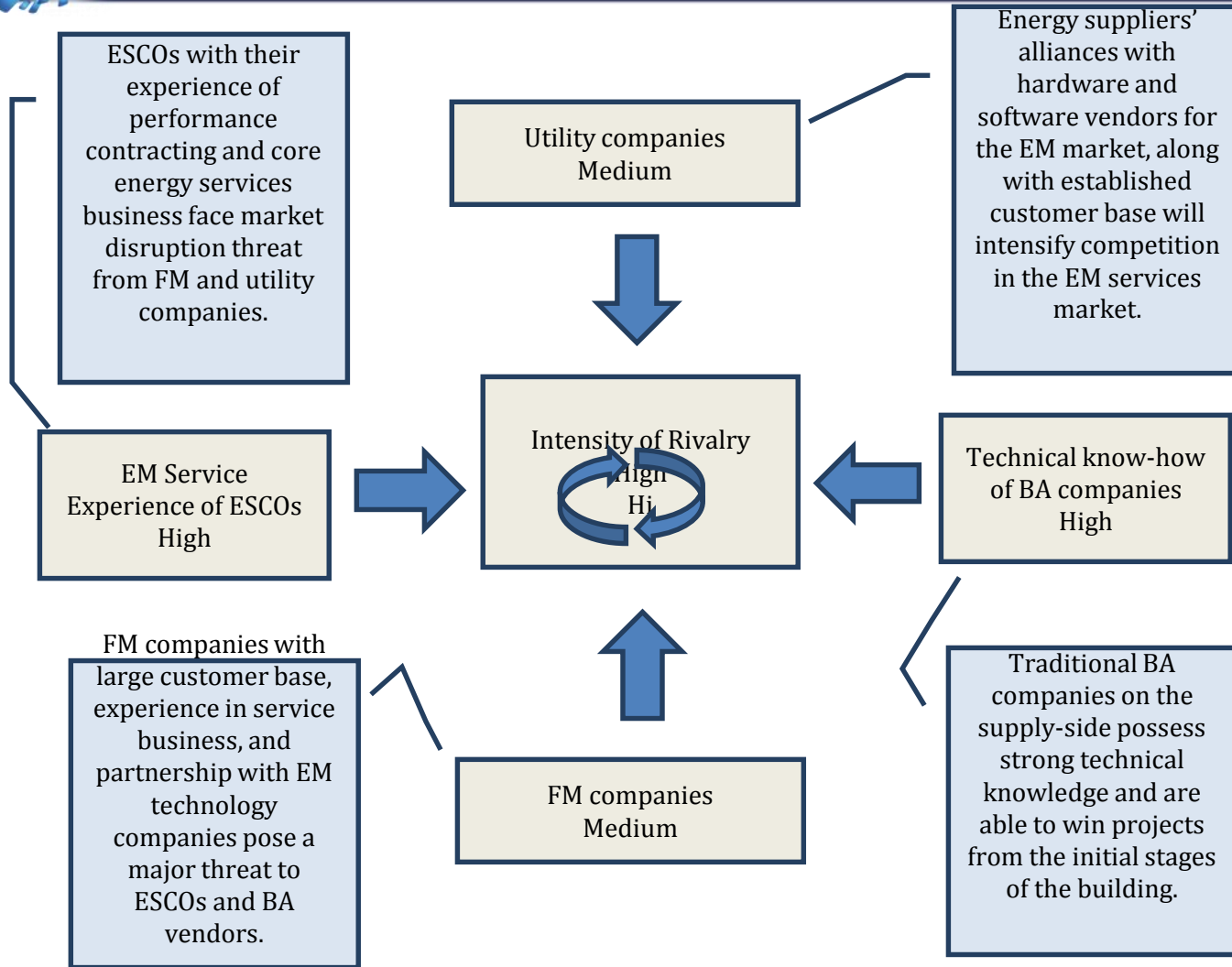
# Energy Efficiency Services



Transformational Industry Trends in BEM (Frost & Sullivan 2016)



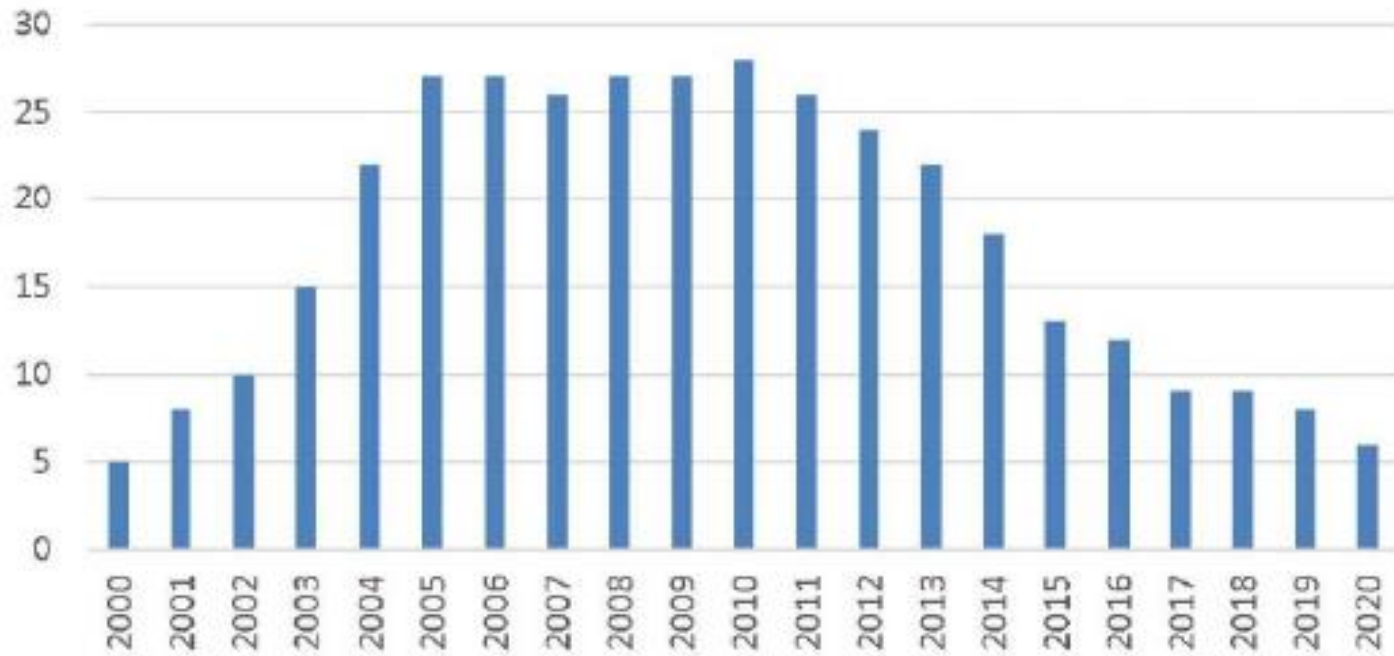
# Energy Efficiency Services



Key Market Actors and competition for supply of EnMS services (Frost & Sullivan 2016)



# ESCO Market Growth



Source: (ÖGUT, 2013)



# Barriers to ESCO Market

- Return on investment not worth risks
- Project development cycles
- Difficulty in Measurement and verification
- Policy and unrealistic expectations
- Cost of finance



# Barriers to ESCO Market

- Return on investment not worth risks  
TOPAs provides energy savings with low investment
- Project development cycles  
TOPAs continuous auditing informs business case for investment
- Difficulty in Measurement and verification  
TOPAs is a comprehensive monitoring, management and M&V tool
- Policy and unrealistic expectations
- Cost of finance





# Summary

- Large opportunity for energy efficiency
- Growing market for energy services
- Integration of services (eg FM as ESCO)
- Trend towards energy management as a service
- Tools needs to overcome barriers - TOPAs



# Thank you