



Verband für Energiedienstleistungen,
Effizienz und Contracting e.V.

European ESCO conference 2022
EPC in Germany – Past, Present and Future

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Working Group Energy Performance Contracting at Vedec



- The Working Group Energy Performance Contracting at vedec e.V. is a coalition of Germany's leading contracting companies. The Working Group was founded in 2008, to raise the degree of familiarity of EPC especially in the public sector, the healthcare business and the industrial segment. Part of the mission was to spread the advantages of EPC and to contribute more significantly to the success story of the energy transition in Germany

of the Working Group are



Energy Performance Contracting

A basic technical approach to Energy Management



Energy Management first reduces energy consumption, then adjusts energy supply and subsequently reduces energy costs sustainably as well as CO₂-emissions



Energy Performance Contracting

The beginnings



- first projects were focused on reducing energy consumption and costs on the consumption side (retrofit projects on controls, AHUs, heating distribution etc.)
'low hanging fruits + some additional measures', savings in the range of 20 %
- (re-)financing through guaranteed savings, partly EPC was regarded as a financing tool, customer participation was not unusual
- implementation of savings measures with defined ROI, typical contract duration was 6 to 12 years
- boiler retrofits (first gas, later on wood chips), lighting projects, cogeneration plants became step by step part of the projects, savings going up to 60 %
- project development models: one step (without detailed analysis upfront)- or two-stage (with detailed analysis included) model in use
- projects range from single buildings to large pools (up to 60 buildings)

Energy Performance Contracting

Project Example: District Neu-Ulm (2003)



- 10 buildings included in the pool: schools and administration buildings
- scope of work:
 - several boiler retrofits (condensing gas boilers)
 - pump replacements and heating circuit distributions upgrades and renewals
 - comprehensive controls retrofits for heating systems and AHUs
 - comprehensive lighting retrofits
 - implementation of metering concept
 - implementation of building management platform and energy management system (web-based, using modems)

- contract duration: 13 yrs
- baseline of energy costs:

608.193 €/a

- guaranteed savings:
137.849 €/a

- investment:
app. 1,1 Mio. €

Energy Performance Contracting

Present times



- projects are much more comprehensive and also include completely new heating plants, renewables (mainly photovoltaics) and building refurbishment (from single measures to complete energy-efficient refurbishment) , savings going up to 70 %
- project focus is still on consumption and cost reduction with CO₂-reduction as a side effect
- (re-)financing through guaranteed savings (mainly) and customer investment grants
- implementation of savings and renovation measures, typical contract duration going up to 15 years
- project development models: one step (without detailed analysis upfront)- or two-stage (with detailed analysis included) model in use
- projects range from single buildings to medium pools (up to 25 buildings), but the individual project volume grew significantly

Energy Performance Contracting

Project Example: Students housing Mannheim (2018)



- contract duration: 16 yrs
- baseline of energy costs:

453.288 €/a

- guaranteed savings:

145.049 €/a

- investment:

app. 2,4 Mio. €

- 8 housing buildings (former military buildings from the 1930's to 1960's), 370 apartments for 776 students heating supply with district heating
- scope of work:
 - energetic renovation of one building to achieve the acknowledged efficiency building standard 70, meaning 30 % less energy consumption than a new building
 - renewal of heating substations including domestic hot water supply
 - reduction of water consumption (new shower heads, toilet flushes etc.)
 - implementation of hydraulic balance of heating and water supply systems, including renewal of thermostat valves (> 1.500)
 - comprehensive lighting retrofit (> 3.000 lamps)
 - implementation of metering concept
 - implementation of building management platform and energy

An outlook on the future of EPC

Technical content



- technical and organizational energy savings and efficiency measures (from building to quarter / area), esp. On the heating side with a focus on reduction of temperature level
- Switch of heating supply to renewables (wood chips, heat pump, geothermal energy or connection to a district heating system). Could include setting up a new district heating network
- decentralized electricity production (photovoltaics, maybe cogeneration based on)
- include storage technologies for heating and/or technologies
- building insulation measures (from single measures to energy-efficient refurbishment)
- include electromobility

An outlook on the future of EPC

Project boundary conditions and results



- focus on achieving decarbonization targets (f. e. net-zero buildings)
- development of a roadmap to decarbonization
- change of energy supply source and comprehensive measures to reduce energy consumption to achieve climate targets will not be refinanced with energy cost savings only
- will become a tool to determine the most economic approach (mixture of technical and building refurbishment measures) to achieve climate targets
- complex projects with the target of a maximum reduction of CO₂-production will be implemented in a manageable financial time frame
- Projects will be implemented over several years
 - Price escalation clauses need to be included
- guarantees to the customer:
 - reduction of CO₂-emissions / future budget CO₂-emissions
 - Reduction of energy consumption
 - system efficiencies, energy mix or percentage of renewables

Thank you for your attention!



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