

# Energy Saving Partnerships in Berlin

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# Background



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## Berlin: situation in the 1990s

- tight budgetary situation, lack of financial resources
- high energy costs
- high saving potential for buildings (~ 25 - 30%)
- Senate (government) decision: 25% CO2 reduction target until 2010

⇒ **Action required**



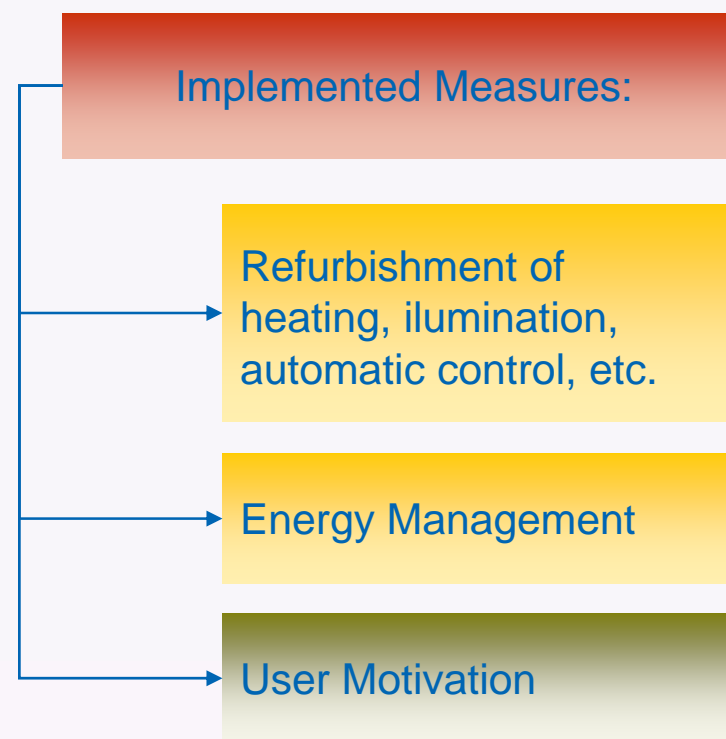
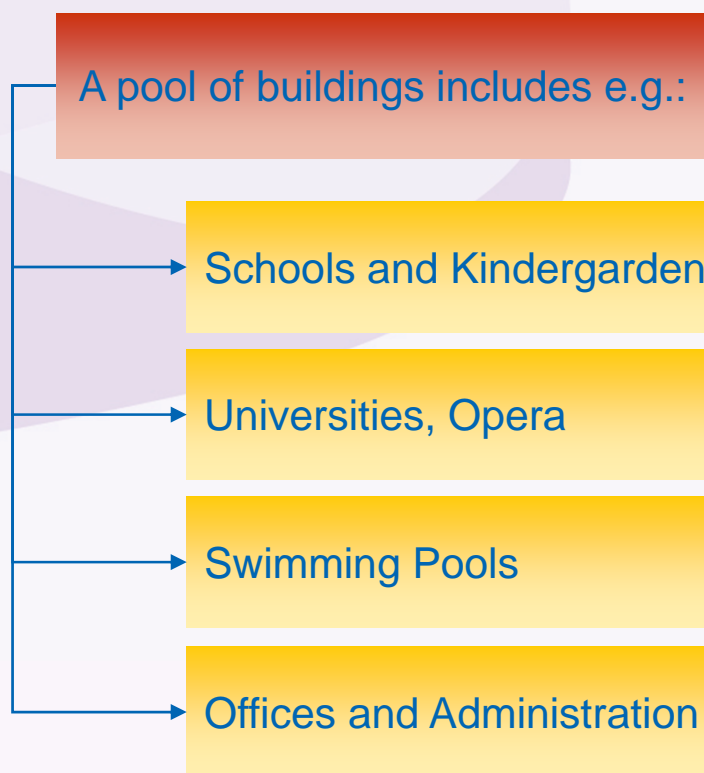
## Energy Saving Contracting (ESC)

- „Energy Saving Partnerships (ESP)“ developed by Berliner Energieagentur (Berlin Energy Agency, BEA) and Berlin’s Senate Department for Urban Development (1995)
- The aim: realisation of energy savings in single or **in a pool** of public buildings made up of different properties (schools, town halls, day nurseries, hospitals, prisons, administrative buildings, ...)
- The cost savings are shared between ESCO & Administration
- Project Management by BEA

# Buildings & Measures



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# Pooling



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Energy Saving Partnerships are not limited to single buildings or large building complexes.

A special characteristic of the Berlin model is the possibility to group smaller projects and create „building pools“. Those pooled buildings have different basic conditions, i.e. levels of energy consumption.

„Pooling“ leads to a profitable crosscalculation; this means also unprofitable buildings are integrated!

# Partners



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- District Administrations of Federal State of Berlin => clients  
(select single buildings or form a pool)
- Private ESCO => contractor  
(planning, financing & implementation of the energy efficient measures,  
management of the properties for a agreed time period)
- Berliner Energieagentur => project manager  
(Support of conception & realisation, monitoring)



# Project Management



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## Project Management needed?

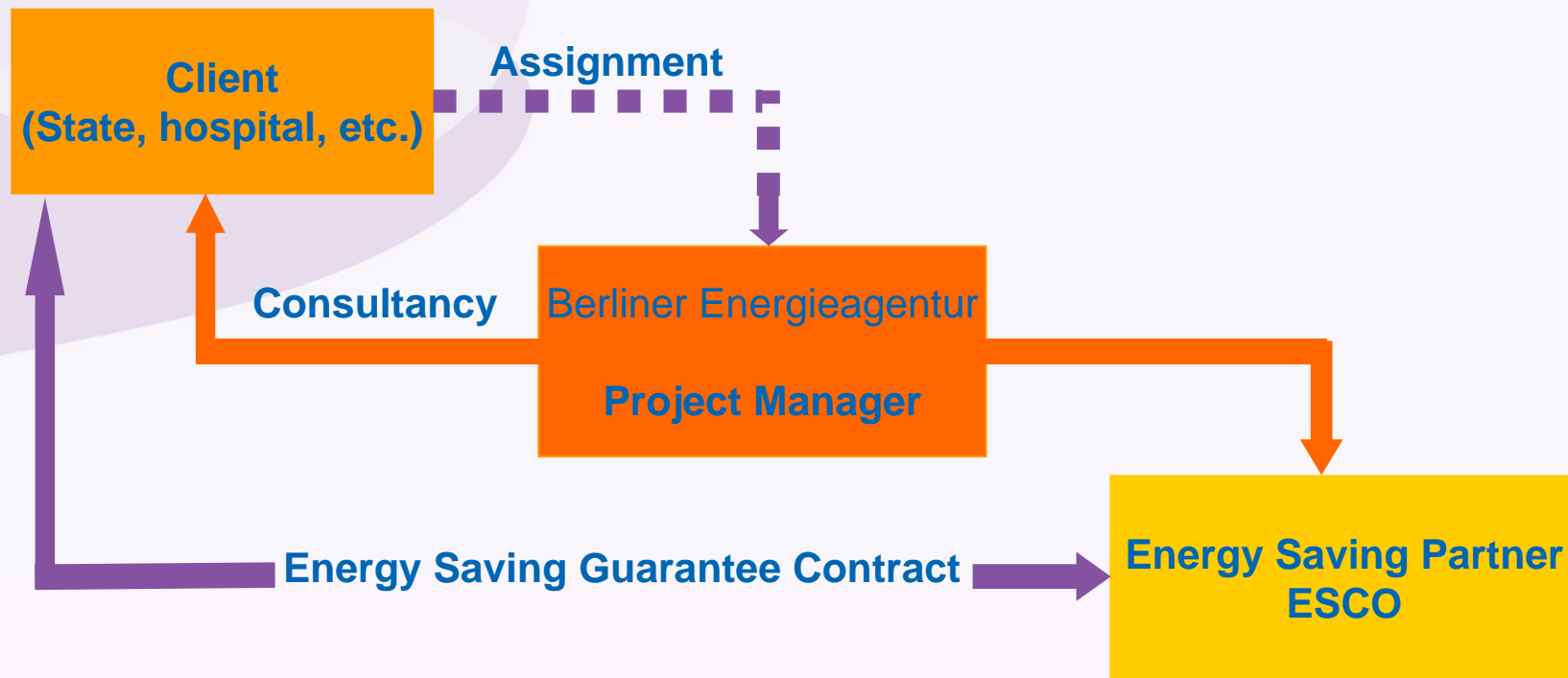
**=> Usually recommended, because:**

- Project manager has the know-how and the necessary overview of the market to find an optimal contractor.
- Project manager is a guarantee for highest possible savings.
- Project manager works at the interface between building owner and ESCO in managing the process.

# Project Management



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# Experiences and Results



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- Guaranteed energy savings achieved in most contracts, high savings up to 35 %
- 25 contracts operated by 15 different ESCOs, around 100 subcontractors (regional SMEs) involved in implementation and maintenance
- Good quality in saving measures because of expertise of ESCOs, rising experience and improvement of cost effectiveness
- Additional improvement of maintenance situation by central coordination through ESCO
- No legal proceedings or need to use the bank guarantees so far, successful re-tendering of EPC projects leads to long-term savings
- **Success thanks to reliable legal framework, standardized procedures and contracts together with professional process management**

# Statistics



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	Pool 1	Pool 2	Pool 3	Pool 4, Pankow	Pool 5, Hellersdorf	Pool 6, Spandau	Pool 8, HU	Pool 9, Friedrichshain
Liegenschaft								30
Baseline-Kosten in €/a	Number of contracts: 25, about 1,400 buildings							0.090.529 €
Baseline-Verbrauch in MWh/a								21.952
Energiesparpartner	ARGE ESP	SEW GmbH, ESP	ARGE ESP Landis	Johnson Controls	HEW Contract	Johnson Controls	ARGE ESP HUR	M/W Energie AG E mit WFM wurde 2002 aufgelöst)
Vertragsbeginn Beginn Hauptleistungspflicht	Guaranteed Savings (all contracts): about 11.7 m €/a							31.01.2001
Dauer der Hauptleistungspflicht	Share of Berlin (savings on public budget): about 2.7 m €/a							01.10.2001 10 Jahre
Dauer der Hauptleistungspflicht	12.75	12.75	12.00	14.00	14.00	14.00	8.00	10.00
Erstinvestition in €								939.243 €
Garantieeinsparung in %	CO <sub>2</sub> reduction: 500,000 t							19,67%
Garantieeinsparung in €								214.507 €
CO <sub>2</sub> -Einsparung in t/a	8.300	5.400	3.000	2.500	1.100	1.000	1.643	925
Garantierte Heizzugabe %	Investments (all contracts) 51,6 m €							3,46%
Garantierte Heizzugabe €/a								37.753 €
Zusätzliche Bedienung in %								90
	ab 30 % Einsparung: 50							
Bedienung / Instandhaltung von Altanlagen durch AN	ja	ja	ja	ja	ja	ja	nein	nein

# Energy Saving Partnerships International Transfer



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**EUROCONTRACT**  
GUARANTEED ENERGY PERFORMANCE

- Model contracts and tender documents (A, D, F, FIN, GR, I, N, S)
- Results: 17 new EPC projects kick-started

**clearcontract**  
CLEARINGHOUSE FOR ENERGY CONTRACTING

**Clearinghouse for Energy Contracting in CEE**

**eesi** european energy  
service initiative

**European Energy Service Initiative**

**Standards set by BEA realised in several other countries**

- Slovenia, Bulgaria, Latvia, Poland, Mexico, Estonia
- Ongoing: Chile, Brazil, India, Belgium, Romania, Serbia, Monaco

# ESP Best Practice – District Steglitz-Zehlendorf



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- Pool: 69 buildings  
(schools, kindergarden, gyms)
- Baseline: 1.84 m €/a
- Guaranteed savings: 29,4 % = 541,679 €/a
- Invest: about 2.8 m €
- CO2 reduction: 3,973 t/a
- Duration of contract: 14 years
- Measures: New boilers in 11 buildings, switch from coal/heat oil to gas, building automation, modernisation of lighting
- Special feature: 100,000 € for renewable energy technologies, e.g. solar thermal systems



# ESP Best Practice – German Opera Berlin



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- Pool: building complex with workshops and administration (approx. 60,000 sqm)
- Baseline: 651 K€/a
- Guaranteed savings: 35.8 % = 233,155 €/a
- Invest (hardware): approx. 1.48 m €
- CO2-reduction: 1,085 t/a
- Contract duration: 12 years
- Obligatory measures: Refurbishment of VAC installations, optimization of cooling plant, potable hot water generation and CBCS
- Special feature: Construction grant of 1 m €, resulting in increase of budget relief from 14,992 €/a to 126,021 €/a



# ESP Best Practice – Hospital „Hubertus“ Berlin



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- Building: general hospital with 300 beds
- Baseline: 860,000 €/a
- Guaranteed savings: 30 % = 140,000 €/a
- Invest: 0.55 m €
- CO2 reduction : 2,600 t/a
- Duration of contract: 12 years
- Measures: Modernisation heat distribution and building automation, central digital energy management system, peak load management, CHP units
- Special feature: Maintenance of all heating, cooling and ventilation devices included (financed by lower share on savings of the owner)



# Thank you for your attention



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