



Task XVI
"Competitive
Energy
Services"

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with support from:



Comprehensive Refurbishment of Buildings with Energy Performance Contracting

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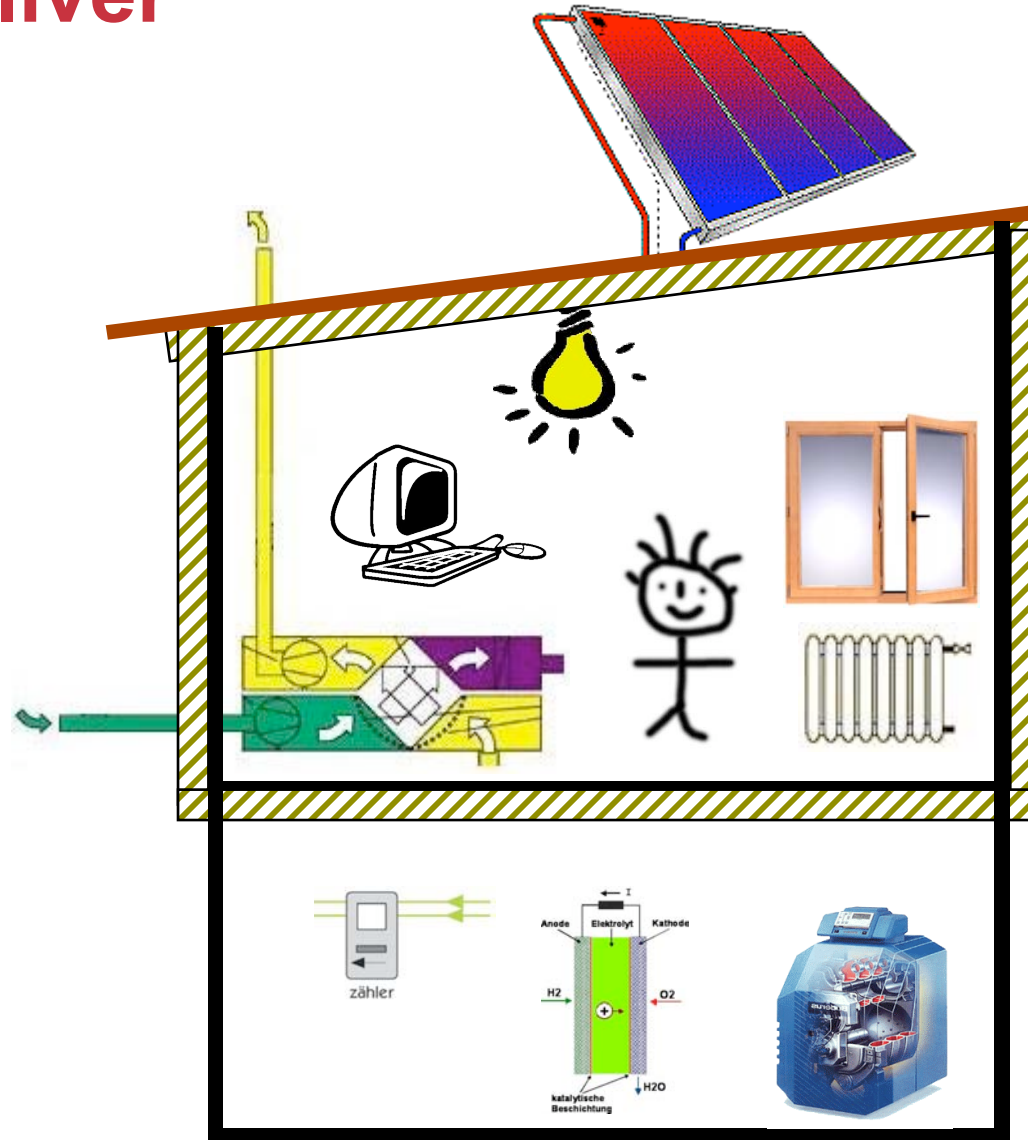
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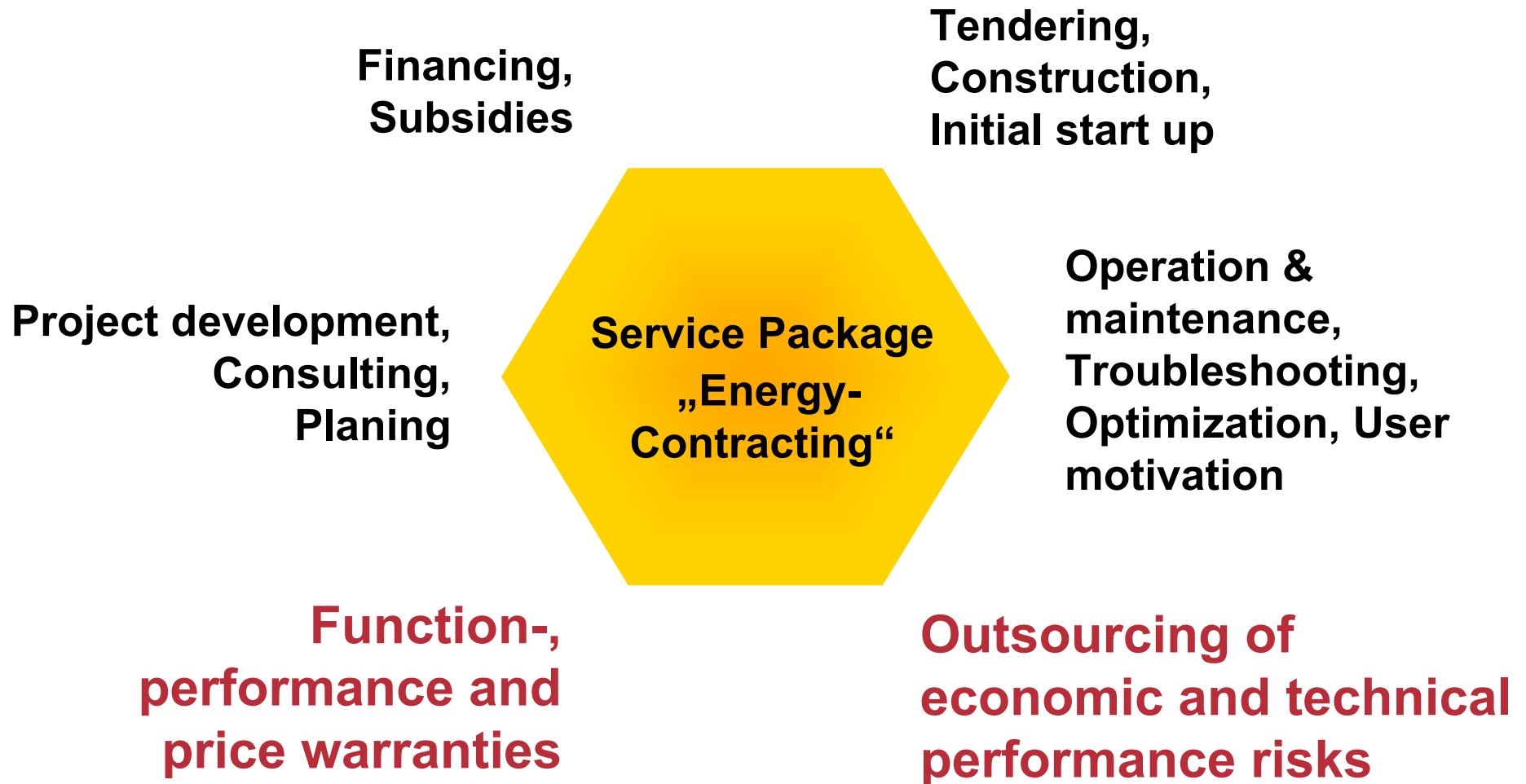


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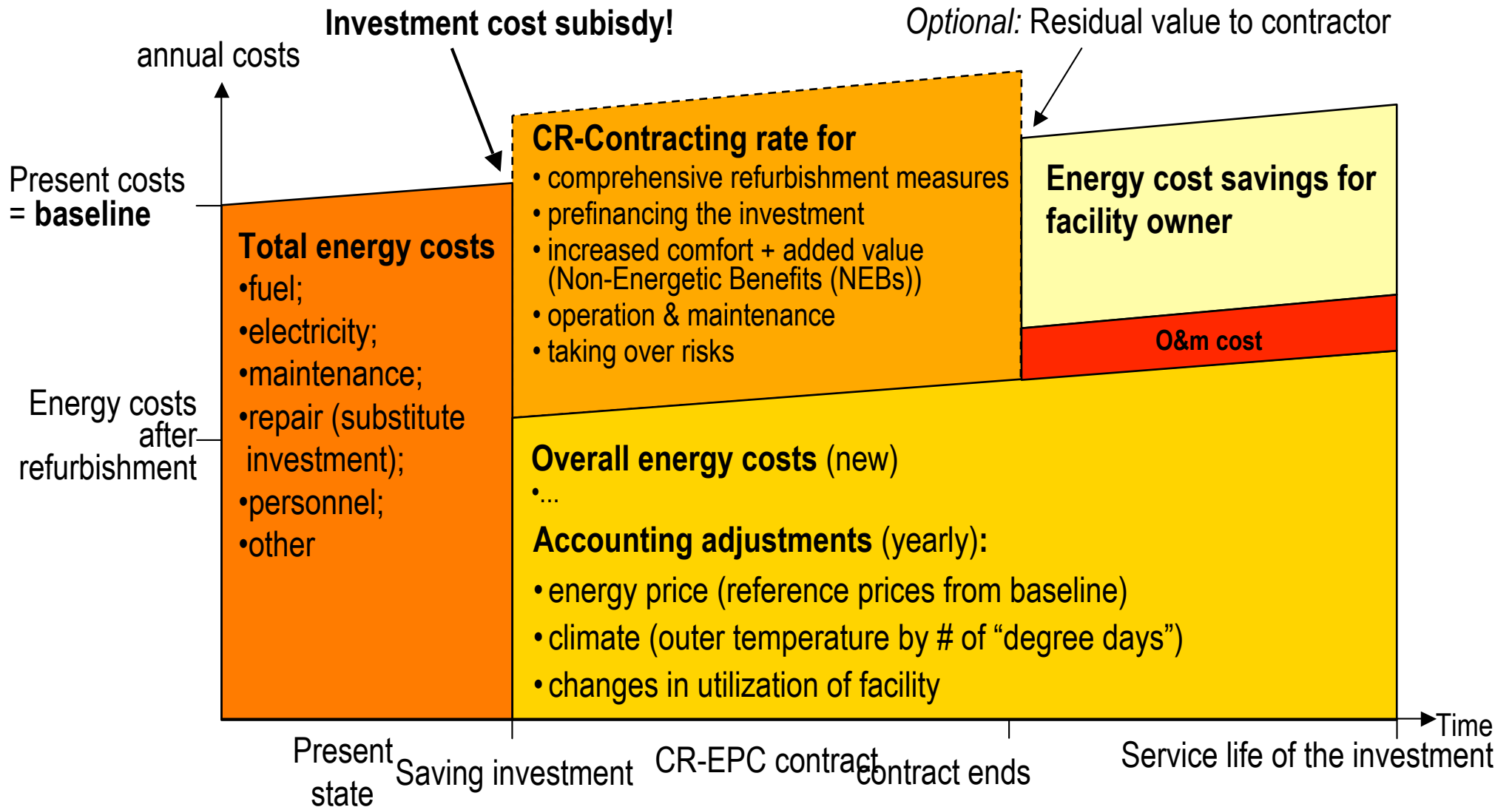
What different Contracting models deliver



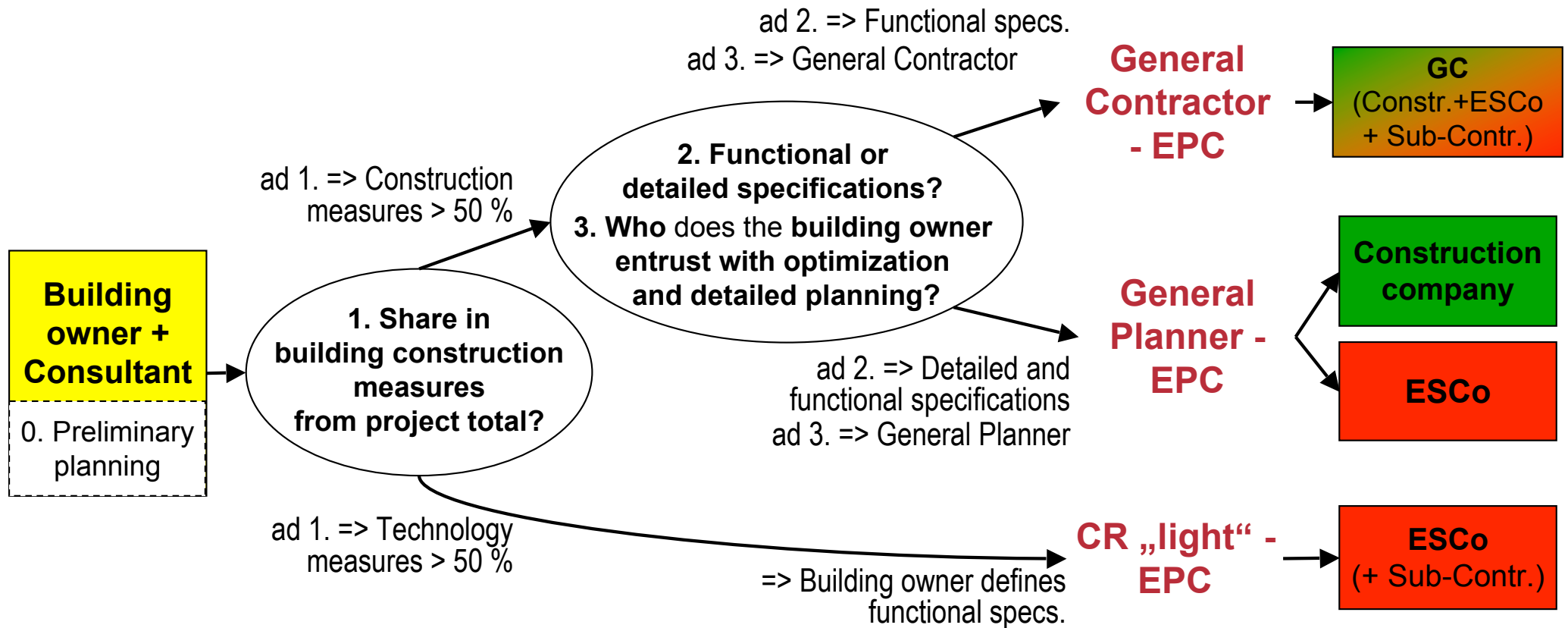
Contracting: a customized service package with succes guarantees



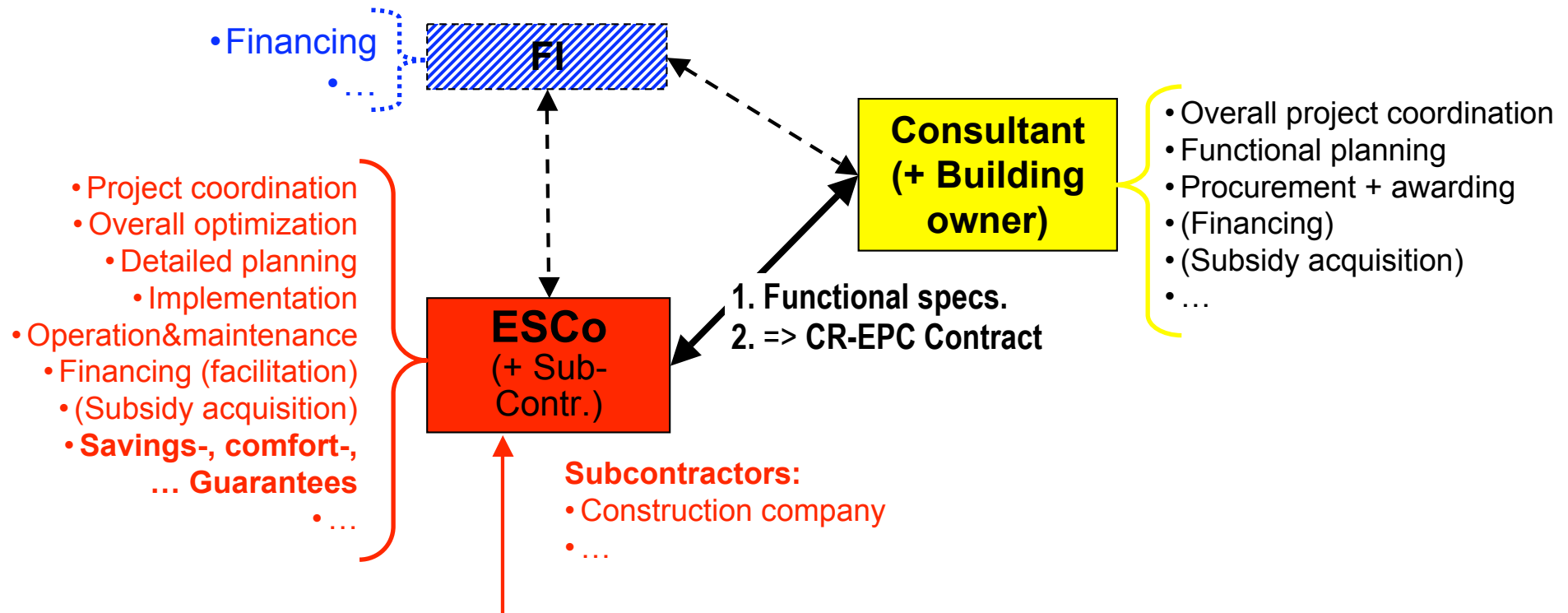
Performance Contracting - Business Model



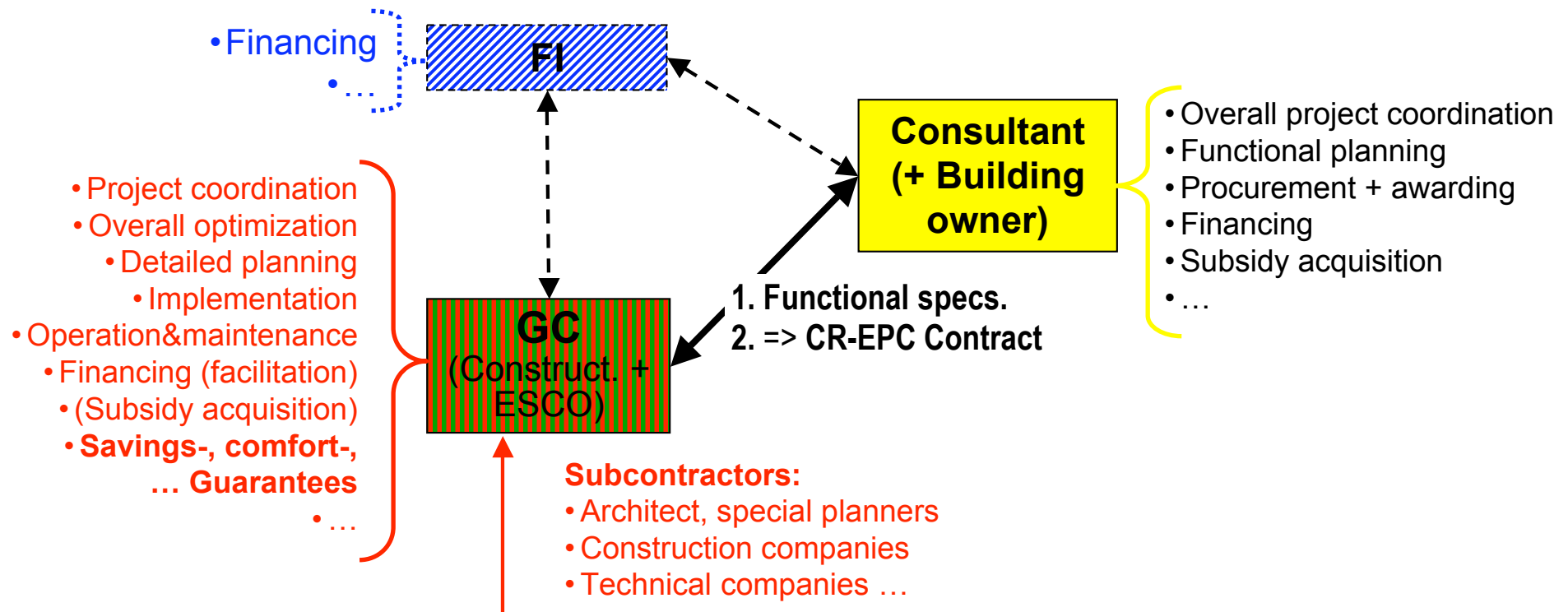
Comprehensive Refurbishment EPC Model selection Flow-Chart



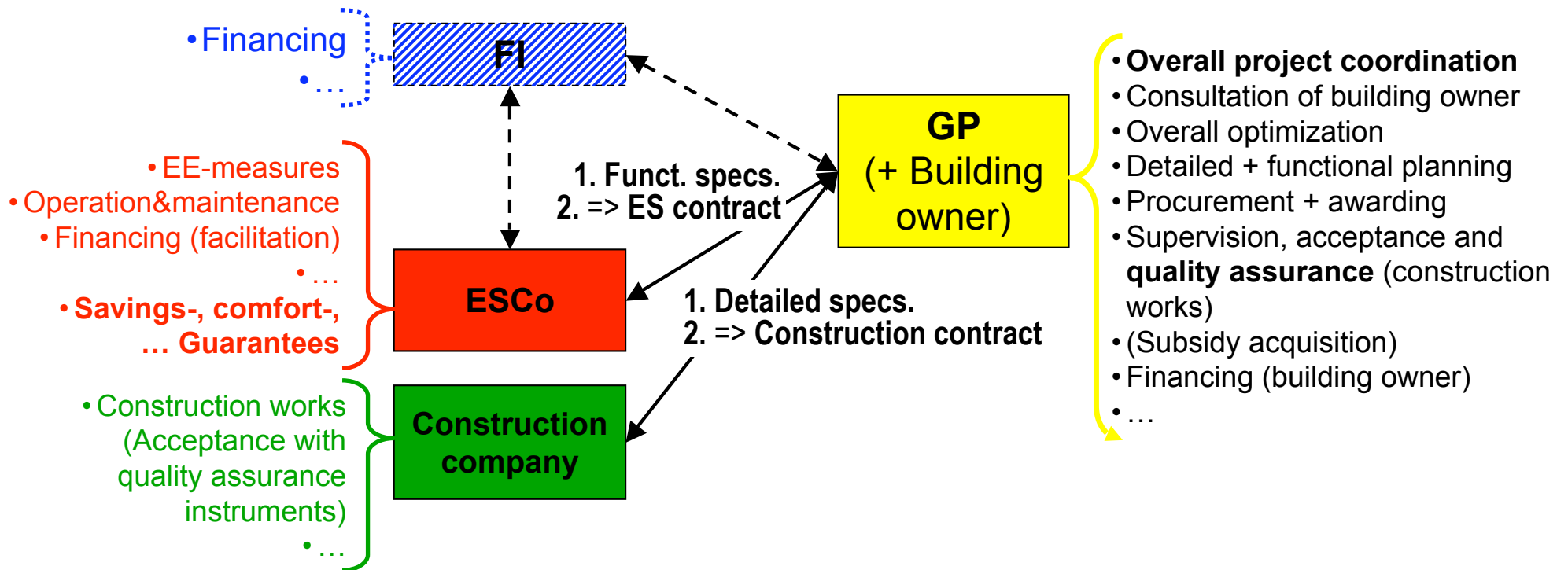
CR „light“-EPC Model



General Contractor CR-EPC Model (GC CR-EPC)



General Planer CR-EPC Model (GP CR-EPC)





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Conclusions (1/2)

 The proposed CR-EPC models can facilitate customized packages of building construction and building technology measures combined with the known warranties and outsourcing of technical and economical risks of standard EPC models.

 Generally: any building design should first of all focus on all possible demand reduction potentials. Afterwards, the remaining demand should be supplied as efficiently as possible. Especially if renewables are involved.

 CR of buildings is a demanding task and requires an integrated planning approach with knowledgeable and experienced partners



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Conclusions (2/2)

 **CR-EPC models can not decrease pay back times of EE investments (10 to 25 years) => (Substantial) Co-financing by building owner is required.**

 **Financing can/must be individually arranged from a combination of savings guarantee, investment cost allowance, third party financing and subsidy programmes.
=> Differentiate between financial and ESCo service, use ESCo as finance vehicle**

 **EE may not be the driving force for building refurbishment. Non energy benefits (external appearance, space use efficiency, lifting income from rent) may be better for selling. Make shure minimum performance standards are in the ToR (also for sale&lease back projects)**



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Outlook

 **Spread the concept, initiate further CR-EPC projects, contribute to the implementation of the EE+ES-directive**

 **Practical experiences with implementation of CR-Models are limited to Austria to our knowledge. We would like to learn about other experiences collected with comprehensive refurbishment of buildings in conjunction with energy services.**

 **EPC-model can be very complex, e.g. adjustments of the baseline due to changes in utilization.
=> Integrating demand side measures and energy saving incentives in the Energy Supply Contracting-model**



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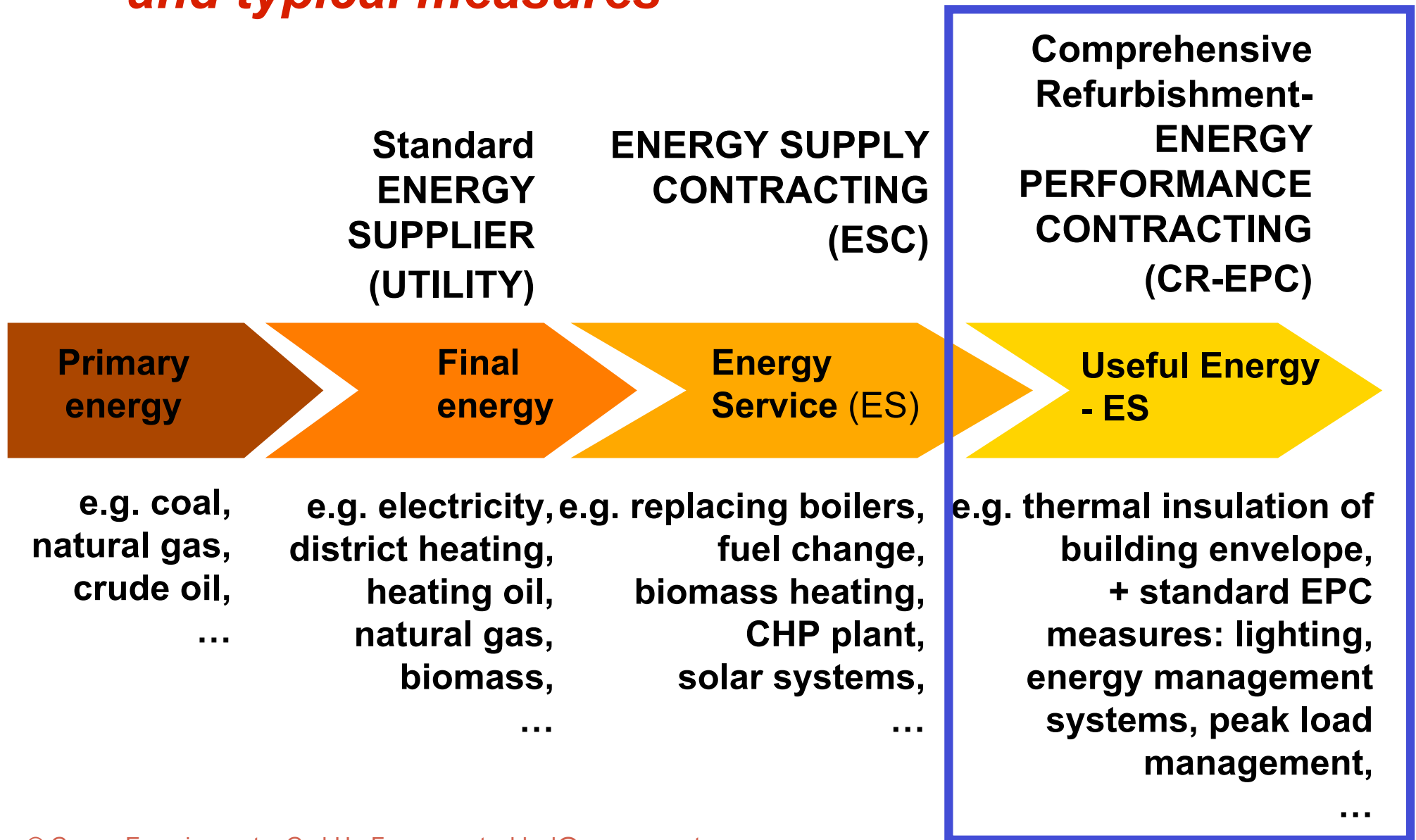


Your questions and comments are welcome!



Get in touch: Jan W. Bleyl, bleyl@grazer-ea.at

Energy added value chain, energy service models and typical measures



Calculation formula for value of negotiable measures

- + \sum Contracting rates (over project term, excl. interest)
 - + Co-financing by building owner
 - + Third party financing by finance institute (excl. interest)
 - + Subsidies
-

- + Demolition work
 - + Building and roof construction
 - + Doors and windows
 - + Thermal and acoustic insulation
 - + Plastering and painting
 - + Miscellaneous
 - + ... (other detailed specs.)
-

\sum total project value – \sum detailed specifications

= \sum negotiable measures (described with functional specifications)