



12.2 ENERGY PERFORMANCE CONTRACTING



**BUILDING ON FAMILY LEGACY OF
EXCELLENCE | MUTUAL RESPECT | ETHICS | SAFETY | SUSTAINABILITY | FAIR RETURN**



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Energy Performance Contracting (EPC) is a way to improve energy efficiency in buildings or facilities without needing to pay upfront costs for the energy-saving upgrades. Here's a more detailed breakdown of how EPC works:

Key Elements of EPC:

1. **Energy Service Company (ESCO):** An ESCO is a third-party organization that specializes in energy efficiency. They are responsible for conducting an energy audit, designing and implementing the energy-saving projects, and ensuring the system operates as intended. ESCOs also guarantee the energy savings and are involved throughout the project's lifecycle.
2. **Energy Audit and Baseline Analysis:** The process begins with an energy audit, which involves a thorough examination of the facility's current energy use. The ESCO identifies areas where energy can be saved, such as lighting, heating, ventilation, air conditioning (HVAC), insulation, and more. This audit sets a baseline energy usage from which improvements will be measured.
3. **Project Design and Implementation:** Based on the audit, the ESCO designs and implements energy-saving measures. These might include replacing old equipment with energy-efficient models, installing better insulation, upgrading lighting systems to LED, or optimizing HVAC systems. The ESCO manages the installation of these improvements and may also provide maintenance services.
4. **Guaranteed Savings:** One of the most important aspects of EPC is the guaranteed savings. The ESCO guarantees that the energy savings generated by the new measures will be enough to pay for the cost of the improvements over time (typically 5-20 years). If the savings fall short, the ESCO is typically responsible for making up the difference. This makes EPC a low-risk investment for the organization.
5. **Performance Monitoring and Verification:** The ESCO regularly monitors the energy consumption of the facility to ensure that the energy-saving measures are delivering the promised results. There is often a third-party verification process (known as Measurement and Verification, or M&V) to confirm that the savings are real and meet the expectations.
6. **Financing:** The key benefit of EPC is that organizations don't need to pay upfront for the energy upgrades. Instead, the ESCO finances the project, and the cost of the improvements is paid off through the energy savings. Sometimes, the financing comes from a combination of the ESCO's own funds and external financing. The payments are structured so that the energy savings cover the costs of the improvements, making it budget-neutral or cash-flow positive.
7. **Contract Length and Terms:** The contract typically spans 5-20 years, depending on the size and complexity of the project. During this period, the organization repays the ESCO for the work done, often with periodic payments that align with the savings generated. At the end of the contract, the organization often owns the upgraded equipment and can continue to enjoy energy savings without additional payments.

Benefits of EPC:

No Upfront Cost: The biggest advantage is that organizations don't need to make an initial investment. The cost of the project is covered by the energy savings.

Guaranteed Savings: The ESCO assumes the risk of delivering the energy savings, so if the expected savings are not met, the ESCO is usually responsible for compensating the shortfall.

Improved Energy Efficiency: Organizations can significantly reduce energy consumption, leading to lower utility bills and a smaller environmental footprint.

Cash Flow Neutral: The savings from energy improvements typically cover the costs of the upgrades, so the organization doesn't have to spend money out-of-pocket.

Sustainability Goals: EPC can help organizations meet environmental goals, reduce their carbon footprint, and comply with energy efficiency regulations or initiatives.

No Maintenance Burden: In some EPC arrangements, the ESCO also handles ongoing maintenance of the equipment, ensuring it continues to operate efficiently throughout the contract period.





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Types of EPC Contracts:

Shared Savings: In this model, the ESCO invests in the project and takes a portion of the energy savings as payment. The remaining savings go to the organization. The more savings generated, the more the ESCO earns.

Guaranteed Savings: Here, the ESCO guarantees a specific level of savings, and the organization repays the ESCO based on those savings. If the savings are higher than expected, the organization may receive the excess.

Direct Financing: In some cases, the ESCO may arrange external financing for the project, and the organization repays the financing costs directly. This is less common but may be an option if no energy savings guarantees are provided.

Examples of EPC Measures:

Lighting Upgrades: Replacing outdated lighting with energy-efficient LED lights.

HVAC Upgrades: Installing energy-efficient heating and cooling systems or upgrading controls for existing systems.

Building Insulation: Adding better insulation to walls, windows, and roofs to reduce heating and cooling energy needs.

Water Conservation: Installing water-efficient fixtures, which can also reduce energy use for water heating.

Building Controls: Upgrading the building's energy management system to better control lighting, HVAC, and other systems.

Who Uses EPC?

Governments: Municipalities or government agencies use EPC to upgrade public buildings and facilities without using taxpayer funds upfront.

Private Companies: Corporations looking to reduce operating costs or improve sustainability often use EPC to upgrade their facilities.

Educational Institutions: Schools and universities can implement EPCs to make their campuses more energy-efficient while staying within budget constraints.

Healthcare: Hospitals and clinics can use EPCs to reduce energy costs, improve patient comfort, and meet environmental goals.

Challenges of EPC:

Long-Term Commitment: Since EPC contracts can last for many years, organizations need to ensure they are committed to the project for the long haul.

Complexity: EPC contracts can be complex, requiring detailed audits, performance monitoring, and verification, which might involve significant legal and technical expertise.

Maintenance Costs: Depending on the contract, maintenance costs may still need to be considered and could be an ongoing responsibility for the organization after the EPC contract ends.

In conclusion, Energy Performance Contracting is an effective way for organizations to reduce energy costs and improve efficiency without upfront capital investment, with the added security of guaranteed savings. It's a win-win for both the organization and the ESCO, as the savings achieved benefit everyone involved.

