Execution of EPC Projects in Developing Asian Countries: Challenges, Solutions, and Sustainability

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Abstract:

Engineering, Procurement, and Construction (EPC) projects are central to energy infrastructure development in emerging economies, particularly in regions like South and Central Asia. However, these projects face severe execution challenges due to regulatory complexity, financing constraints, limited local capacity, and stakeholder misalignment.

This study focuses on real-world cases from Bangladesh and Turkmenistan, analyzing how these challenges impact timelines, costs, and long-term viability. Proposed solutions include modular EPC approaches, enhanced stakeholder integration frameworks, and EPC+Finance models to mitigate funding risks. The urgency is amplified by the ongoing global energy transition, where despite ambitions, there are currently no viable large-scale alternatives to fossil fuels. Nuclear power contributes only a small global share and is constrained by fuel resource limits, offering no realistic path forward.

Hence, fossil-fueled energy projects—especially in developing nations—must prioritize efficient, transparent, and sustainable execution rather than banking on speculative breakthroughs. This paper offers a set of policy and technical recommendations to improve EPC outcomes while acknowledging the practical constraints of the global energy mix.

Keywords:

EPC project management, sustainable infrastructure, stakeholder engagement, energy transition, new technology implementation.