

## 电力系统

### 基于全寿命周期理念的500 kV变电站初期主接线选择

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#### 摘要:

摘要: 立足于全寿命周期管理理念, 提出以系统分解结构(EBS)和设计目标分解结构(OBS)构建变电站全寿命周期设计2维技术体系。以安庆500 kV变电站初期主接线选择为例, 对3种备选接线方案的可靠性与安全性进行了定性分析和定量计算, 比较了各方案主要的一、二次设备扩建过渡期间保证主变连续供电的可扩展性, 对各方案全寿命周期成本进行估算, 以投资最少、现值最省作为成本最优化指标, 最终选择线路-变压器组作为初期主接线方案, 指出了选择500 kV变电站初期主接线方案时应着重考虑的因素。

#### 关键词:

### Selection of Main Electrical Connection of a 500 kV Substation in Initial Stage Based on Idea of Life Cycle

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#### Abstract:

ABSTRACT: Based on the management idea of life cycle, a two dimensional technical system is constructed by engineering breakdown structure (EBS) and object breakdown structure (OBS) for the design of substation life cycle. Taking the selection of main electrical connection in initial stage of 500 kV Anqing substation for example, the qualitative analysis and quantitative calculation of reliability and security of three alternative electrical connection schemes are performed; the extensibilities in the three schemes to ensure the uninterrupted power supply of main transformers during the transition period, when main primary and secondary equipments are extended, are compared; and the life cycle costs of these schemes are estimated. Thus taking the least investment and the most economic present value as the indices of cost optimization, the line-transformer units are finally chosen as the main electrical connection scheme in the initial stage. The factors that should be emphatically considered during the selection of main electrical connection scheme of 500 kV substation in the initial stage are pointed out.

#### Keywords:

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