

中华人民共和国行业标准

小水电建设项目经济评价规程

SL16-95

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Economic Evaluation Code for Small Hydropower Projects

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1 总则

1.1 为实现小水电建设项目决策的科学化、民主化，促进小水电事业的发展，根据国家计委《建设项目经济评价方法与参数》中的规定，结合小水电特点，特制定本规程。

1.2 小水电建设项目的经济评价，是指装机容量 25000kW 以下电站和其配套电网的新建、改建、扩建、复建、更新改造项目，以及主要由中小水电站网供电的县级农村电气化规划的经济评价。农村水电地区 50000kW 及以下容量的中型电站可参照执行。

1.3 本规程适用于小水电建设项目(以下简称建设项目)的可行性研究、初步设计及相应县级农村电气化规划等文件和报告中的经济评价。

经济评价是建设项目规划、设计文件的重要组成部分，没有进行经济评价的规划、设计文件，主管部门(单位)不予审批。

1. General Principal

1.1 Targeting at the scientific and democratic project decision of the construction of small hydropower projects, to promote the development of small hydropower projects. Based on the regulation of <the Method and Data of Economic Evaluation in the Construction Projects> edited by National Design Committee, and the characters of small hydropower projects the regulations is as following:

1.2 the economic evaluation of the construction of small hydropower projects means the station with the installed capacity under 25000kw and the new construction, modification, expansion, rebuild, updating of the matched grid, also the rural electrization programming in county supplied by middle and small hydropower station. The middle size hydropower project with the installed capacity of 50000kw or below in rural area could follow this document.

1.3 this regulation is applicable for the feasibility research, initial design or economic evaluation in the document and report of the countryside relative rural electrization programming

The economic is the important components of the construction project design or the design documents. If there is not any economic evaluation in the design document, the relative authority will not approve.

装机容量较小的水电站和规划(达标)期较短的农村电气化规划项目, 允许采用适当的简化方法进行经济评价, 简化方法见附录 A。

As for the project design with smaller installed capacity station and shorter planning period of the rural electrization programming, it is permissible to adopt the appropriate simplification way to do the economic evaluation, the simplified method is as in Annex A.

1.4 建设项目的经济评价分财务评价与国民经济评价。

1.4 The economic evaluation of the construction project could be divided as financial evaluation and national economy evaluation.

1.4.1 财务评价的目的是在国家现行财税制度和价格的条件下, 考察建设项目的财务可行性。

1.4.1 The target of the financial evaluation is to evaluate the financial feasibility of the construction project under the present policy which is income and taxation policy and price policy.

1.4.2 国民经济评价的目的是从综合平衡角度, 分析评价建设项目对国民经济发展的贡献, 以判别建设项目的经济合理性。

1.4.2 The target of national economic evaluation is to analysis and evaluate the contribution to the development of

1.5 建设项目经济评价的判别条件如下。

1.5 The judging standards of the economic evaluation are as following.

1.5.1 财务评价和国民经济评价的成果均可行, 则建设项目经济评价可行。

1.5.1 If the results of the financial evaluation and national economy policy are feasible for both, the economic evaluation of the construction project is feasible.

1.5.2 财务评价和国民经济评价均不可行或财务评价可行而国民经济评价不合理时, 则建设项目经济评价不可行。

1.5.2 If the results of the financial evaluation and national economy policy are not feasible for both, or the condition that the financial evaluation is feasible and national economy evaluation is not feasible, the economic evaluation of this project is not feasible.

1.5.3 国民经济评价合理而财务评价不可行时，可向国家和主管部门提出采取优惠政策的建议，如通过反推可行的电价，提出调整电价的方案或给以低息贷款的建议等，使建设项目符合财务可行性条件。

1.5.3 If the result of national economy evaluation is feasible and financial evaluation is not feasible, the project owner could promote the suggestion to the relative authority to adopt the favorable policy. Such as promote the suggestion as adjust the grid price through converting grid price or provide loan with lower interest, making the project is financially feasible.

1.6 建设项目经济评价应严格遵守费用与效益(投入与产出)计算口径对应的原则。

1.6 the economic evaluation of the construction project should strictly follow the principal as calculating caliber of fees and profit(input and output)should be comply with each other.

财务评价时投入与产出均用现行价格体系为基础的预测价格，即要考虑工程筹备期和建设期物价上涨因素。

When implementing the financial analysis, the output and input should use the estimating prices based on present price system, means that increasing price factor in the construction preparing period and construction period.

国民经济评价时其投入产出均用影子价格。

When implementing the national economy evaluation, the calculation of the input and output should use shadow price.

小水电建设项目经济评价应以动态分析为主，辅以某些静态指标。

The implementation of economic evaluation should be done mainly as dynamic analysis, matched with some static factors.

1.7 小水电建设项目经济评价的计算期包括建设期、投产期和生产期。

1.7. The calculating period for economic evaluation of the small hydropower construction includes constructing period, commissioning period, and manufacturing period.

1.7.1 建设期：自建设项目动工兴建到开始生产前为止。

1.7.1 The Constructing Period: from the project begin to construct to the time before formal manufacture.

1.7.2 投产期：自建设项目开始生产到形成全部生产能力前为止。

1.7.2.The Commissioning Period: from the beginning of the construction to the full load of construction.

1.7.3 生产期：自建设项目形成全部生产能力开始算起，一般采用 20 年计算。

1.7.3 the constructing period: from the date of full load manufacture, generally calculating as 20 years.

1.7.4 计算期的时间基准点定在建设期的第一年初。

1.7.4 the time starting point of the calculating period is the beginning of the first year in the constructing period.

1.8 利用外资的项目，按国家计委颁发的《建设项目经济评价方法与参数》的要求和原则，参照本规程的计算方法和参数进行评价。

1.8. As for the project utilizing foreign investment, the calculating way should be based on the requirement and principal of <the Method and Data of Economic Evaluation in the Construction Projects> edited by National Design Committee, also the calculating way and data of this regulation.

1.9 小水电建设项目经济评价中的主要参数(影子价格、社会折现率等)，应采用国家计委同期颁发的参数，当国家计委调整参数时，本规程应作相应调整。

1.9 The main factors in the economic evaluation of the construction of small hydropower project as the shadow price and discount rate etc, it is regulated that the calculation should adopt the data edited by National Planning Committee in the same period. When the National Planning Committee adjusts the data, these documents will adjust the data accordingly.

4.3 财务内部收益率(FIRR)是指计算期内各年净现金流量累计现值等于零的折现率，其表达式为：

4.3. The Financial Internal Rate of Return means the discount rate when the present value of the accumulated net cash flow in every year is equal to zero. Its equation is as following:

$\sum_{t=1}^n (CI - CO)_t (1 + FIRR)^{-t} = 0 \quad (4.3)$	
式中 CI——	现金流入量；
CO——	现金流出量；
$(CI - CO)_t$ ——	第 t 年的净现金流量；
n——	计算期。

在财务评价中，求出的财务内部收益率(FIRR)大于或等于小水电财务基准收益率(I_c)时，即认为建设项目财务评价可行。

小水电财务基准收益率(I_c)定为10%。

$\sum_{t=1}^n (CI - CO)_t (1 + FIRR)^{-t} = 0 \quad (4.3)$	
CI—	Cash input flow;
CO—	Cash output flow
$(CI - CO)_t$ —	Net cash flow in t year
n—	Calculating year

In the financial evaluation, when the acquired Financial Internal Rate of Return is larger or equal than the financial benchmark return rate (I_c), we can conclude that the financial evaluation of this construction project is feasible.

The financial benchmark rate of return of small hydropower is 10%.