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**NATIONAL STANDARD OF THE
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Guide for energy losses calculation of small hydropower grid

小水电电网电能损耗计算导则

(English Translation)

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

This standard is proposed and managed by the Ministry of Water Resources.

This standard by the Ministry of Water Resources Research Institute for Rural Electrification is responsible for drafting.

1 Scope

This standard gives small hydropower grid power loss calculation and analysis.

This standard applies to power loss small hydro power based small hydropower grid computing, calculating statistics, analysis and loss reduction effect.

2.1 Calculation Principle

SHP grid power loss should include the sum of the elements of the grid power loss, power loss SHP grid shall be calculated in the transmission and distribution Calculated on the basis of the elements of power grid loss of lines, transformers, compensation and adjustment of equipment as well as measurement and protection devices.

2.2 Basic Information

SHP electricity grid losses should be calculated on the basis of collected basic information on the following.

Power plants, substations and run wiring diagram grid; parameter data transformers, lines, condensers, capacitors, reactors and other elements of the package Including nameplate data, measured data as well as the active power of each network element, reactive power and current, voltage and other parameters.

Parameter distribution lines each segment; nameplate parameters of distribution transformers; substation and power plants on behalf of the outlet end of May and August with load song Line, active power, reactive power and voltage curves; users and public distribution transformers and distribution transformers is the day of the full month of active power, reactive power Electricity; capacity and location of the distribution line capacitor means and a full month into operation time.

2.3 Days to choose representatives

Chosen to represent the date according to the following principles.

- a) Run small hydropower grid, flow distribution can represent the calculation of normal;
- b) date is the day of the power supply, close to the calculated period (month, quarter, year) average daily power supply;
- c) the user's electricity situation is normal, weather conditions, the temperature close to the calculation of the average temperature;
- d) to be able to represent the calculation period (month, quarter, year) wet season, dry season various load conditions, select 3-4 representatives of days.

2.4 Representative daily load record

Representative daily load shall be complete and meet the computing needs, should include the whole point 24h power plants, substations, lines and other output current, output A current, active power, reactive power, voltage, and power sub-period day record, and draw the daily load curve by the hour record.

3.1 Line Energy Loss Calculation

Energy Loss Calculation line with its daily load curve is based on RMS current method can be used, the average current, maximum forward current method Line calculation, method, see Appendix A.

3.2 Transformer power loss calculation

The power loss of the transformer should include no-load loss and load loss of electricity power.