Small Hydro Power
– Inwestor Guide

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Definition of small hydro power station

Is it a good investment for me?

The perspective of the profits coming from the flowing water, economical conditionings of the development

Technical conditioning of the development.

Using the natural resources

The information transfer

Summary – essential requirements and threats

Definition of small hydro power station

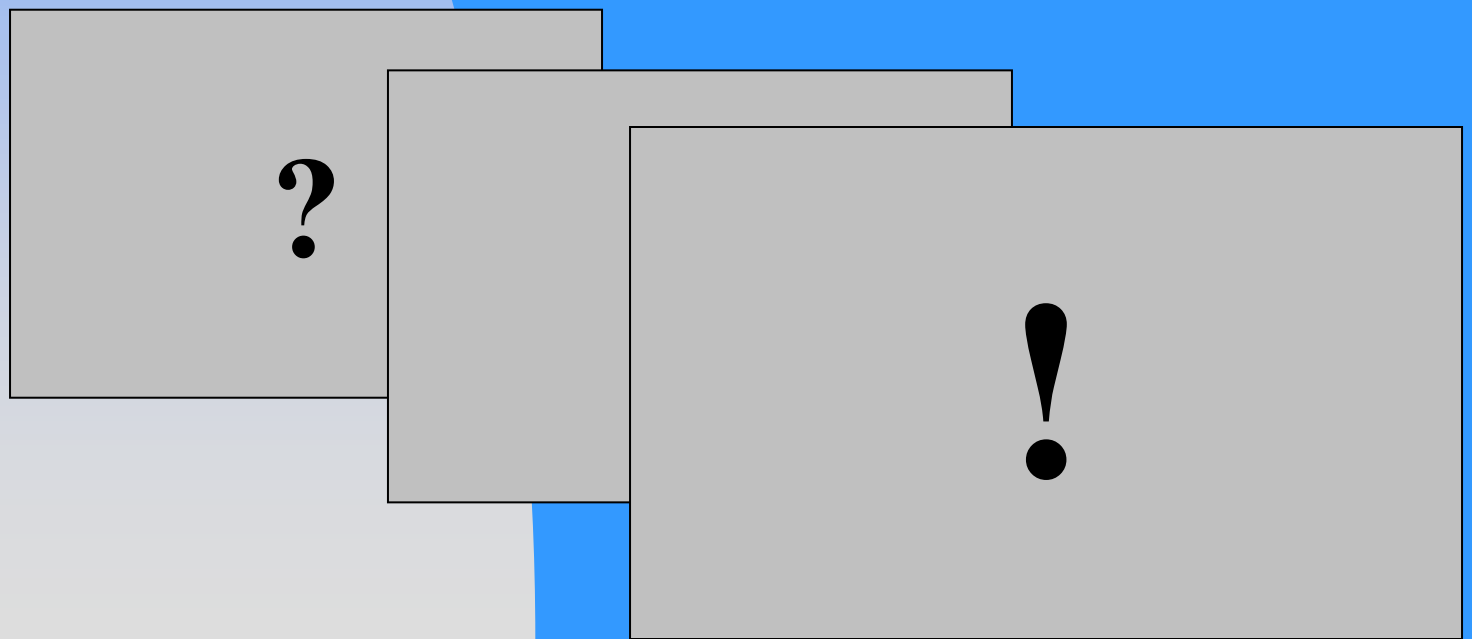
The European Union has no uniform classification criteria for small hydro power (SHP). As a rule, the installed power capacity is the main classification criterion. According to the ESHA (European Small Hydro Association), the European Commission and the UNIPEDE (International Union of Producers and Distributors of Electricity), SHP refers to units up to 10 MW. However, this limit is set at 3 MW in Italy, 8 MW in France, and 5 MW in the UK.

A distinction is often made for the 'Mini-hydro' subgroup, which comprises units between 100 kW and 1 MW. Sometimes the term Mini-hydro is used to refer to units in the range of 100-300 kW, which feed local loads not connected to the distribution network and which are usually located in rural areas.

The initial analysis should answer the following questions:

Does the investment meet my expectations?

Is it a good investment for me?



The perspective of the profits coming from the flowing water, economical conditionings of the development

The interest in producing the electric energy, building the revival resources particularly hydroelectric power stations has been very large

Only a little percentage of the investors has begun to realize the investment and achieved the end.

The return of the investment costs is from 15 to 20 years similarly to other investments in the energetics In exceptional conditions the return of the investment costs will come in a sorter time of about 7-10 years

Technical conditioning of the development.

The process of the investments, preparation and the construction of the small power station from the technical point of view is composed of three stages:

-studying the primary assumptions
-technical projects / water intakes, water turbines, the electric part with automation
-realization of the investment as far as the construction of the hydroelectric power station elements is concerned
-The technical level of the Power station is strictly connected with the exploitation of the small hydroelectric power stations: the continuity of the work, keeping proper parameters, safety, the costs of exploitation and as the result the amount of the produced energy
.

Using the natural resources

River energy resources, the amount of possible places for building the new power stations is limited that is why a very important matter is the optimal use of the places where small power stations will exist.

The information transfer

Indicating the range of information directed to the particular interested groups and potential investors
The receivers can be divided into three groups:
-interested in the matter
-- potential investors
-electric energy receivers i.e. the biggest and most important group
-Building the suitable climate and conditions for investing in the revival power industry constitutes not only the open energy market, access to the financing sources, the institutional, company and local council contribution but also the support of reliable information, knowledge, creating the general acceptance for these enterprises especially in the costs of enquiring the ecological energy.

Initial stage (before realisation)
Question:

What to do?

Remarks

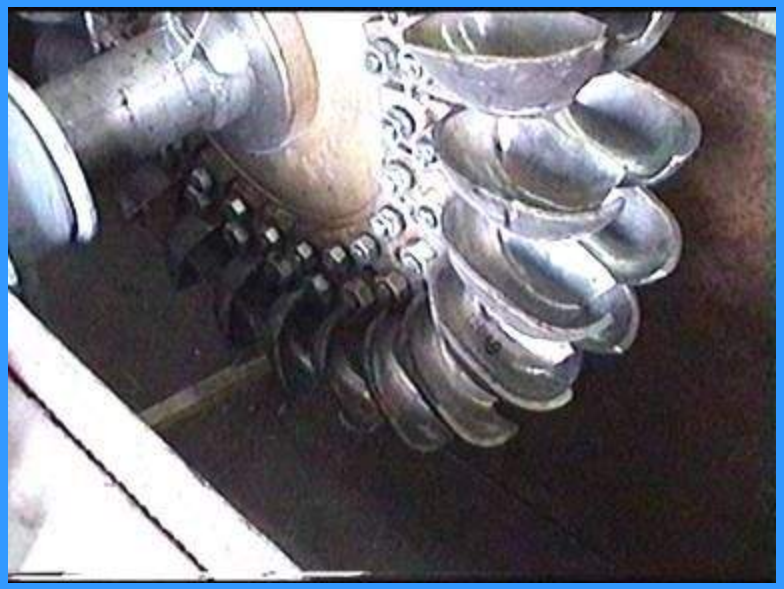
• determine expectations concerning SHP: • financial, • with regard to realisation, • with regard to operations, • become familiar with: • electrical energy trade conditions • legal, technical conditions • investment financing conditions

'the myth of flowing water' which is only the source of revenues should be opposed to solid analysis of expectations, which should be fulfilled at each stage of project implementation

if the answer to the question ’IS THIS INVESTMENT FOR ME?’ is positive: Question:

What to do?

Remarks



determine potential locations and initial conditions on the basis of historical data: head, flow

errors in determining initial parameters are transferred to subsequent stages and are difficult to correct

obtain initial consultations, agreements concerning SHP location, water management, grid connection, power output

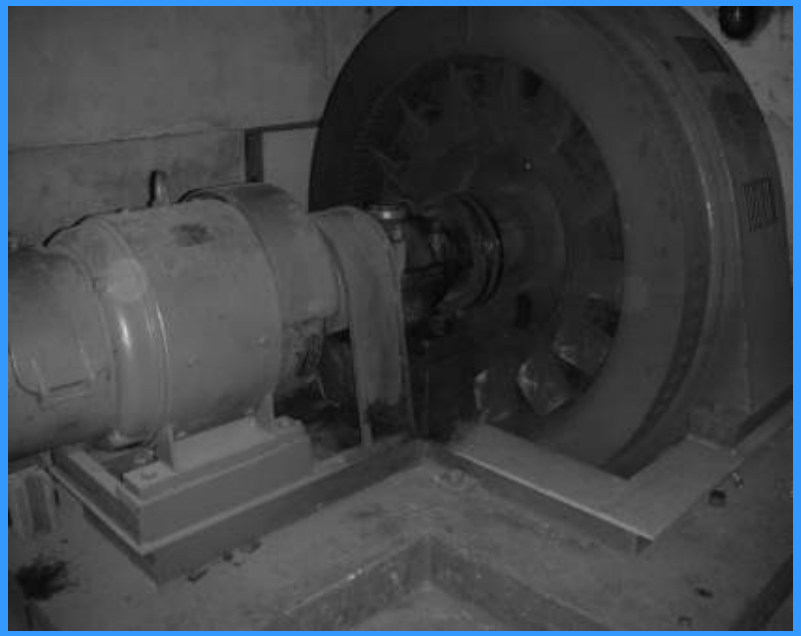
the chosen place is not always good with regard to law, technical, security, environmental, financial conditions

determine water requirements, acquire necessary licences

determine full range of requirements concerning water use

prepare technical projects for weir, intake, pipes, discharge, powerhouse, turbines, electrical connections, automation

choice of types and number of turbines depending on the flow should guarantee the full use of the energy potential of the site and optimise electrical energy production

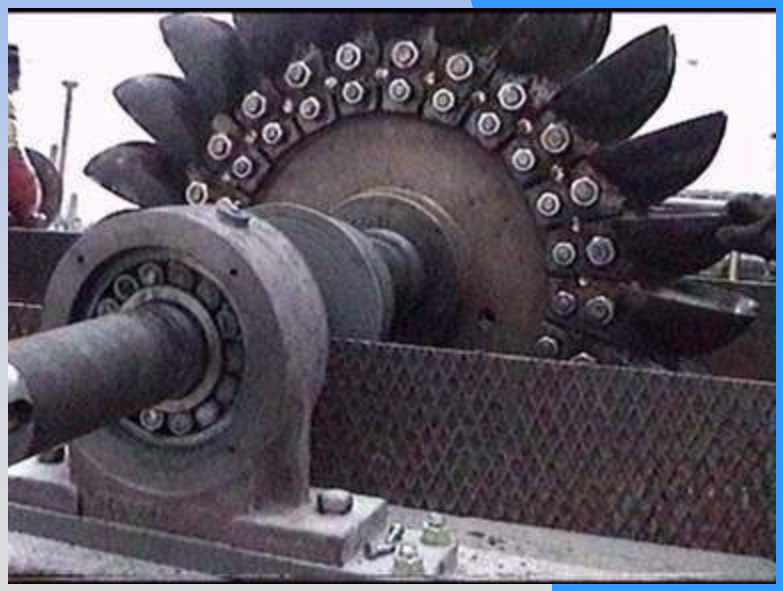


prepare business plan, feasibility study, financial security of investment

correct determination of costs for each part of the project enables the planned technical level of SHP to be reached

realisation of investment

before starting the project, it is advisable to consult a broad group of specialists in each area, while taking into account high investment costs



technical acceptance, putting into operation

it is essential to fulfil the requirements concerning security of operations, grid protection, metering and settlement system, protection against flooding,

contract on sale and receipt of electrical energy

market analysis, contract preparation, fulfilment of energy trade requirements

operations

requirements:

• formal and legal, concerning trade of energy, • technical, connected with operations and environment, • financial, connected with operating costs, taxes, etc.

Building the suitable climate and conditions for investing in the revival power industry constitutes not only the open energy market, access to the financing sources, the institutional, company and local council contribution but also the support of reliable information, knowledge, creating the general acceptance for these enterprises especially in the costs of enquiring the ecological energy.

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