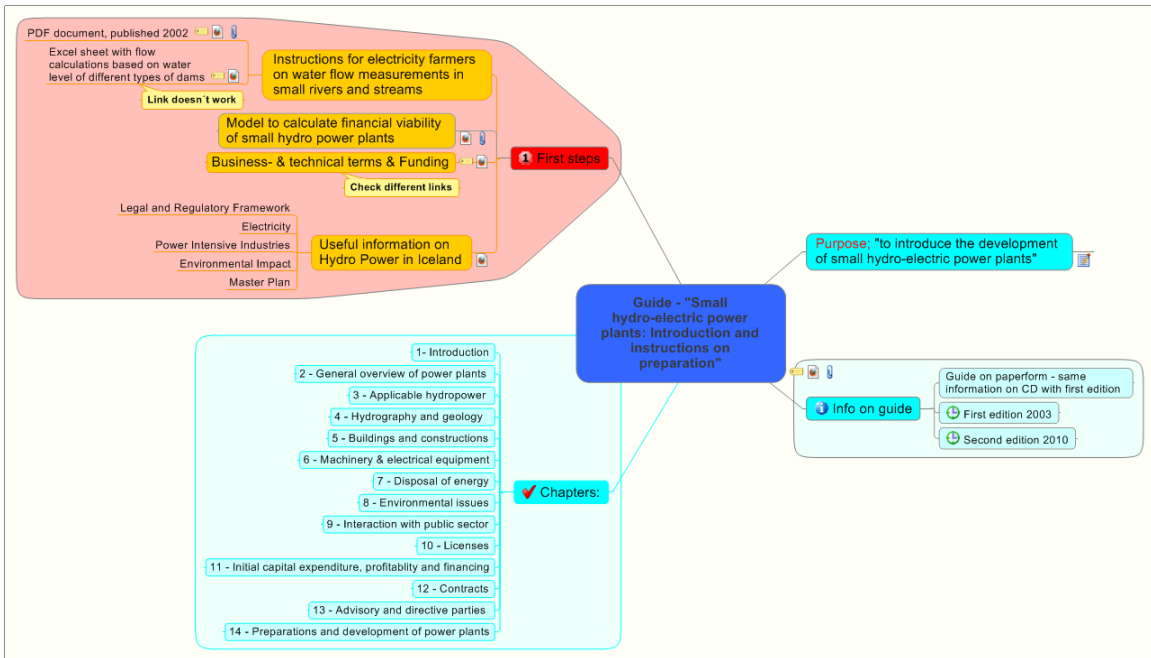


# Guide - "Small hydro-electric power plants: Introduction and instructions on preparation"



See document: [Litlar-vatnsaflsvirkjanir-2-utgafa.pdf](#)

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## Guide - "Small hydro-electric power plants: Introduction and instructions on preparation"

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## **1 Purpose; "to introduce the development of small hydro-electric power plants"**

Issued addressed include; pre research studies, buildings, machinery & electrical equipment, interactions with public sector and planning. In addition there are instructions on how to conduct preparations. When it comes to design interested parties should seek professional consultancy or acquire detailed design data.

Since the publications of the first guide in 2003 the number of small hydroelectric power stations has increased by 25-30, thereof 19 are connected to the national grid. Main changes in the newest edition (2010) have to do with the legal framework.

Solutions covered consider lay of the land and size. Readers are guided on how, based on first information on water flow and vertical drop, they can estimate size of the power plant and setup according to lay of the land.

Other important issues described are the following:

- Main machinery and what types are suitable under various condition.
- The fundamentals of electrotechnology and the importance of choosing the right electrical equipment.
- Connection to the national grid and the electricity business.
- Licenses required and interaction with public sector.
- Illustrative examples on initial capital expenditure and operating budget.
- How to construct reasonable implementation plan suitable for grantors and lenders.

## **2 Info on guide**

**2.1 *Guide on paperform - same information on CD with first edition***

**2.2  *First edition 2003***

**2.3  *Second edition 2010***

## **3 Chapters:**

**3.1 *1- Introduction***

**3.2 *2 - General overview of power plants***

**3.3 *3 - Applicable hydropower***

**3.4 *4 - Hydrography and geology***

**3.5 *5 - Buildings and constructions***

**3.6 *6 - Machinery & electrical equipment***

**3.7 *7 - Disposal of energy***

**3.8 *8 - Environmental issues***

**3.9 *9 - Interaction with public sector***

**3.10 *10 - Licenses***

**3.11 *11 - Initial capital expenditure, profitability and financing***

**3.12 *12 - Contracts***

**3.13 *13 - Advisory and directive parties***

**3.14 *14 - Preparations and development of power plants***

## **4 First steps**

**4.1 *Instructions for electricity farmers on water flow measurements in small rivers and streams***

**4.1.1 PDF document, published 2002**

See document: [vantsrennslisleidbeiningar14.pdf](#)

See attachment(s): [vantsrennslisleidbeiningar14.pdf](#)

#### **4.1.2 Excel sheet with flow calculations based on water level of different types of dams**

See document: [yfirfall11.xls](#)

#### ***4.2 Model to calculate financial viability of small hydro power plants***

See document: [reiknilikon](#)

See attachment(s): [Reiknilíkan fyrir smávirkjun vs1 1.xlsm](#)

#### ***4.3 Business- & technical terms & Funding***

See document: [smavirkjanir](#)

#### ***4.4 Useful information on Hydro Power in Iceland***

See document: [hydro](#)

##### **4.4.1 Legal and Regulatory Framework**

##### **4.4.2 Electricity**

##### **4.4.3 Power Intensive Industries**

##### **4.4.4 Environmental Impact**

##### **4.4.5 Master Plan**