

# Muskhi HPP



# Ministry of Energy of Georgia

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## Basic Parameters

- ▶ Installed Capacity - 2.04 MW
- ▶ Average Annual Generation – 8.02 GW/h
- ▶ Regulation Type – Run-off-the-river
- ▶ Capacity Usage Ratio – 44.92%



# Assumptions and Financial Indicators

- ▶ Construction Cost – 3.22 million USD
- ▶ Domestic Tariff – 4.8 USc/kWh
- ▶ Export Tariff – 8 USc/kWh
- ▶ Project IRR – 12%
- ▶ Project NPV – 0.5 million USD
- ▶ Equity IRR – 17%
- ▶ Equity NPV – 0.6 million USD
- ▶ Payback Period – 10 years

*Note: All the calculations are based on preliminary assumptions. Therefore any clarifications will cause appropriate changes in the final results.*



# Site Description

## ▶ **Site Location:**

- Samtskhe-Javakheti region, Akhaltsikhe district, village Kheoti.
- Name of the River: Injasu
- GPS Coordinates: X=341275 Y=4602520

## ▶ **HPP Type:**

Diversion, Run-off-the-river

## ▶ **Site Description:**

Head units, diversion pressure metal pipe, power house, tailrace channel. Head unit on the river Injasu. Spillway, height - 4.5m, which ensures maximum water discharge, reinforced concrete water intake and silt basin with sluice. diversion pressure metal pipe, diameter – 1.0m, length – 2.15 km. Water through pressure metal pipe leads to the power house. Power house dimensions - 9.5x18.0m, height - 7.0m. Tailrace channel is rectangular reinforced concrete construction, dimensions - 1.5x1.5m, length - 10.0m.

# Project Data

## Technical Parameters

|                                     |     |                   |
|-------------------------------------|-----|-------------------|
| Installed Capacity                  | MW  | 2.04              |
| Average Annual output               | GWh | 8.02              |
| Capacity usage ratio/Efficiency     | %   | 44.92             |
| Type of regulation                  |     | Run-off-the-river |
| Scheme of energetic usage potential |     | Full              |

### Hydrology

|  |                     |       |
|--|---------------------|-------|
| Hydrological Data (number of years)        | Year                | 35    |
| Year of the average multi annual discharge | Year                | 1953  |
| High water flow                            | m <sup>3</sup> /sec | 1.92  |
| Average water flow                         | m <sup>3</sup> /sec | 1.47  |
| Low water flow                             | m <sup>3</sup> /sec | 1.15  |
| PMF (1%)                                   | m <sup>3</sup> /sec | 35.7  |
| Rated water discharge                      | m <sup>3</sup> /sec | 2.5   |
| Maximum gross head                         | m                   | 119.6 |
| Minimum gross head                         | m                   | 98.3  |

### Dam

|                 |      |                      |
|-----------------|------|----------------------|
| Type            |      | Lateral-water intake |
| Crest Elevation | masl | 1340.0               |

### Powerhouse

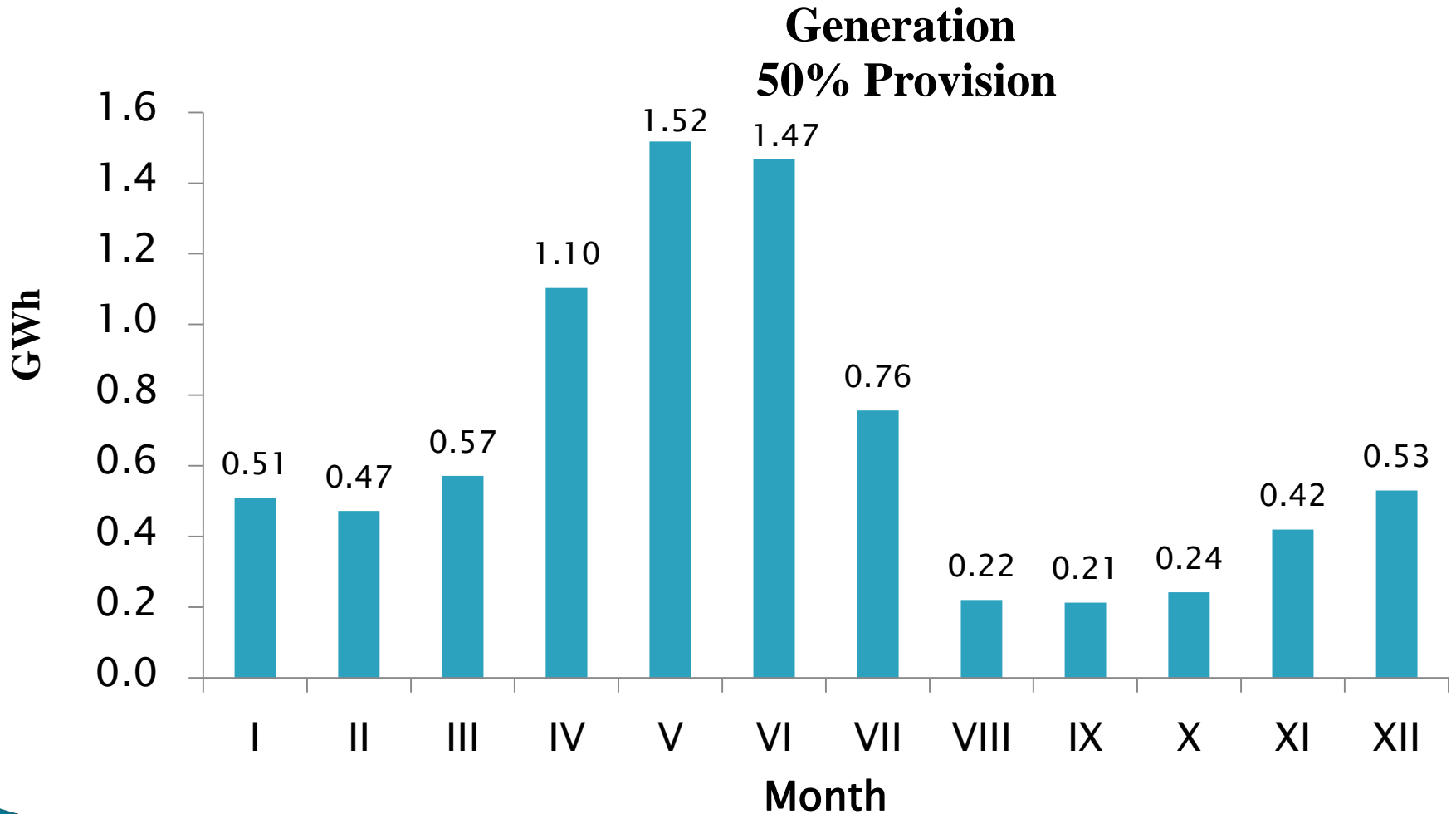
|                                   |      |           |
|-----------------------------------|------|-----------|
| Dimensions (w x h x l)            | m    | 9.5x12x18 |
| Elevation of tailrace outlet sill | masl | 1220.00   |

### Tailrace

|                    |   |                 |
|--------------------|---|-----------------|
| Type               |   | Covered channel |
| Dimensions (w x h) | m | 1.5x1.5         |

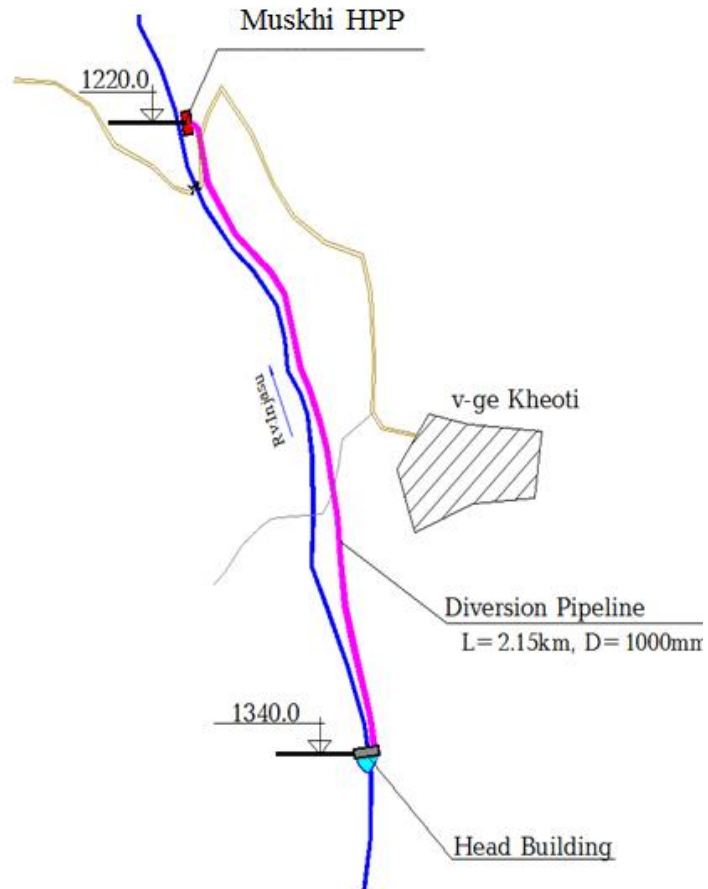


# Average Monthly Generation





# Project Plan





# Longitudinal Section

