

## **2001 HYDRO R&D FORUM RESEARCH SYNOPSIS**

**Project Title:**

Turbine Free of Mineral Lubricants

**Keywords:**

Turbines, Greaseless

**Scope of Project:**

Development of non-polluting turbine, free of oils and greases

**Benefits of Project (either Achieved or Expected):**

The presence of mineral lubricants in hydraulic turbines in close proximity of water creates a danger of unintended pollution. The only certain way of achieving a truly risk-free situation is the elimination of oils and greases from the turbine. This step was undertaken in the design of generating units at Naussac (France), developed and tested by ALSTOM.

The design of these Deriaz pump-turbines includes:

- Water operated runner blades
- Water operated hydrostatic bearing and seal
- Inlet valve and downstream gate water operated
- Distributor electrically operated

The information gained at the Naussac Deriaz unit is directly applicable to Kaplan designs.

**Status of Project:**

One prototype in operation

**Organizations and Companies Involved:**

ALSTOM Power

**Funding Details:**

Internal ALSTOM funding

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