

MULTIBAT IN AUSTRIA - AN EFFECTIVE BATTERY MANAGEMENT ON TEMPLE SITE

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Stand Alone systems (SAS) represent an appropriate solution in many cases, especially for rural decentralised electrification. The effective management of batteries in SAS is of major concerns due to costs of batteries, its life time and maintenance issues. The objective of the European Project MULTIBAT project is to maintain new batteries and to recover old ones. For achieving this objective a new battery management system for renewable energies MULTIBAT is developed and performs demonstrations of this system on real sites. The new battery management system is able to slow down or overcome the degradation process of lead-acid batteries due to consuming energy from incomplete charged batteries. The general principle is to manage the battery by individual strings in order to remain it in a favourable state and to allow discharging only from complete charged batteries. MULTIBAT improves more than 50% of the exploitation lifetime of lead acid batteries, which represent more than 90% on the today world market. Without increasing installation costs this extension will lead to definitive benefits for SAS systems by lowering the maintenance costs for batteries, about 46% of the life cycle costs. Moreover, this cost will be reduced by MULTIBAT system by lowering battery capacities. The final objective of the project will be to reduce the current oversized PV system by a factor 1.5 and the storage unit over sizing by a factor 3 to 4 in future RES applications. In order to fulfil these goals the MULTIBAT equipment was developed by Electricite de France (F) and delivered to project partners in order i) to be compared with conventional systems at ECN (NL) and ATERSA (SP), ii) to undertake special laboratory tests at CEAC-Exide (F) and iii) to recover batteries in Greece (CRES) and in Austria (arsenal research). Four Austrian test sites were evaluated in a ranking of following criteria:

	Stüdl	Tem-ple	Lud-wig	Stein
Criteria's for the test site				
• Willingness of the system owner to collaborate	-	+	+	+
• Extreme Climate conditions	+	0	+	+
• Continuous running remote Monitoring (no changes by the plant owner, information in case of malfunction, ...)	-	+	+	+
• Energy efficient consumption behaviour	-	+	0	0
• Infrastructure to reach the test site	-	+	-	-
• Continuously open (these Alpine huts are closed during the winter time period)	-	+	-	-
Criteria's of the hut owner to joint the Multibat project				
• Benefit to participate at an European project	0	+	0	0
• Reliable system: Warranty contract in case of battery damages through MULTIBAT	+	+	+	+

Legend: Alpine hut **Stüdl**hütte, **Temple** Mödling, Alpine hut **Ludwigsburger** Hütte, Alpine hut **Steinsee**, - poor, 0 indifferent, + good

The Temple site was chosen unanimously by all MULTIBAT partners. Far away from the grid the 5kWp PV system is perfectly integrated in the monarchy architecture of this ancient temple within the Austrian community Mödling. A public financed light show illuminates the old and well-known Temple during each night. An onsite Monitoring system is installed and all parameters are measured according to the IEC Standard 61724. The status of charge was measured during remedial maintenance time periods and is part of the continuous measuring data acquisition since April 2002. It is expected that in contrast to the decreasing characteristics of the actual battery modules, the capacity curve will be nearly constant with the MULTIBAT system over the work life. The comparison of old and new data will allow to analyse the ability of this innovative battery management system to regenerate old batteries. First results of mentioned comparisons will be expected in July 2003 and can be disseminated on the European PV-Hybrid and Mini-Grid Conference.