

Cable-based Solar Wings Tracking

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One-axis tracking 650kW installed 2009

- Cable based module tracking system ($\pm 45^\circ$ EW) in operation since January 2009.
- Beneficial double use of land, 2.5 m above the ground of the waste disposal site.
- Poly cryst. 230 W modules; 8 modules per support beam, 320 beams, 3 tracking cables, 21 inverters (30k, NT30).
- Plus 22% gain due to tracking; PR 91% in 2009 (lower module temp., $T_{amb} +24^\circ\text{C}$ @ 1000W/m²)

Two-axis tracking 60 kW installed 2010

- Cable based module tracking system ($\pm 45^\circ$ and $\pm 35^\circ$) in operation since January 2010.
- Double use of land 8 m above the truck road at Flumroc AG open-air storage facility.
- Customer decided to mount the cables parallel to the truck road (azimuth 50°).
- Supporting cables are twisted by a linear drive on each 40 m spaced pillow.

Solar ski lift 60 kW to be installed 2011

- One axis cable based tracking system will be installed on top of the ski lift cables in 2011.
- The support beams are mounted in a distance of 5 m along the 400 m lift cables (about 20% coverage of the lift-trasse).
- The electricity consumption of the ski lift will be lower than the yearly electricity production of the 60 kWp PV system.

Conclusion and Outlook

- Solar Wings systems have proven excellent performance data since 1.5 year operation.
- Mounting above ground of a waste disposal site and open air storage facilities are demonstrated. A solar ski lift will be constructed in 2011.
- One and two axis systems are supported by the Solar Wings concept.
- Further development work is going on to combine two-axis cable-based tracking with low light concentration – Power Wings.

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Fig. 1: One-axis tracking 650 kW, Lonza Solarpark, Germany

	Solar Input fix at 22° [kWh/m ²]		AC yield [Wh/Wp]	
	2009	2010	2009	2010
January	27.9	22.7	29.2	27.5
February	54.3	41.0	54.4	47.5
March	80.1	95.9	92.8	115.8
April	133.7	134.3	153.0	165.0
May	151.8	113.2	167.0	124.7
June	156.3	140.4	177.1	161.3
July	151.9		170.0	
August	162.2		182.4	
September	114.7		132.9	
October	77.3		87.9	
November	32.6		35.2	
December	25.0		26.6	
YEAR	1167.9		1308.5	

Tab. 1: Performance of one-axis 650 kW Lonza Solarpark (ISE Monitoring)



Fig. 2: Two-axis tracking 60 kW, Flumroc AG, Switzerland

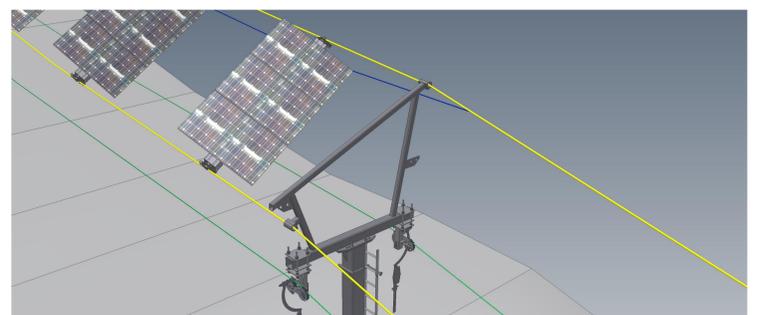


Fig. 3: Solar Wings ski lift, 60 kW, Safiental, Switzerland (2011)

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