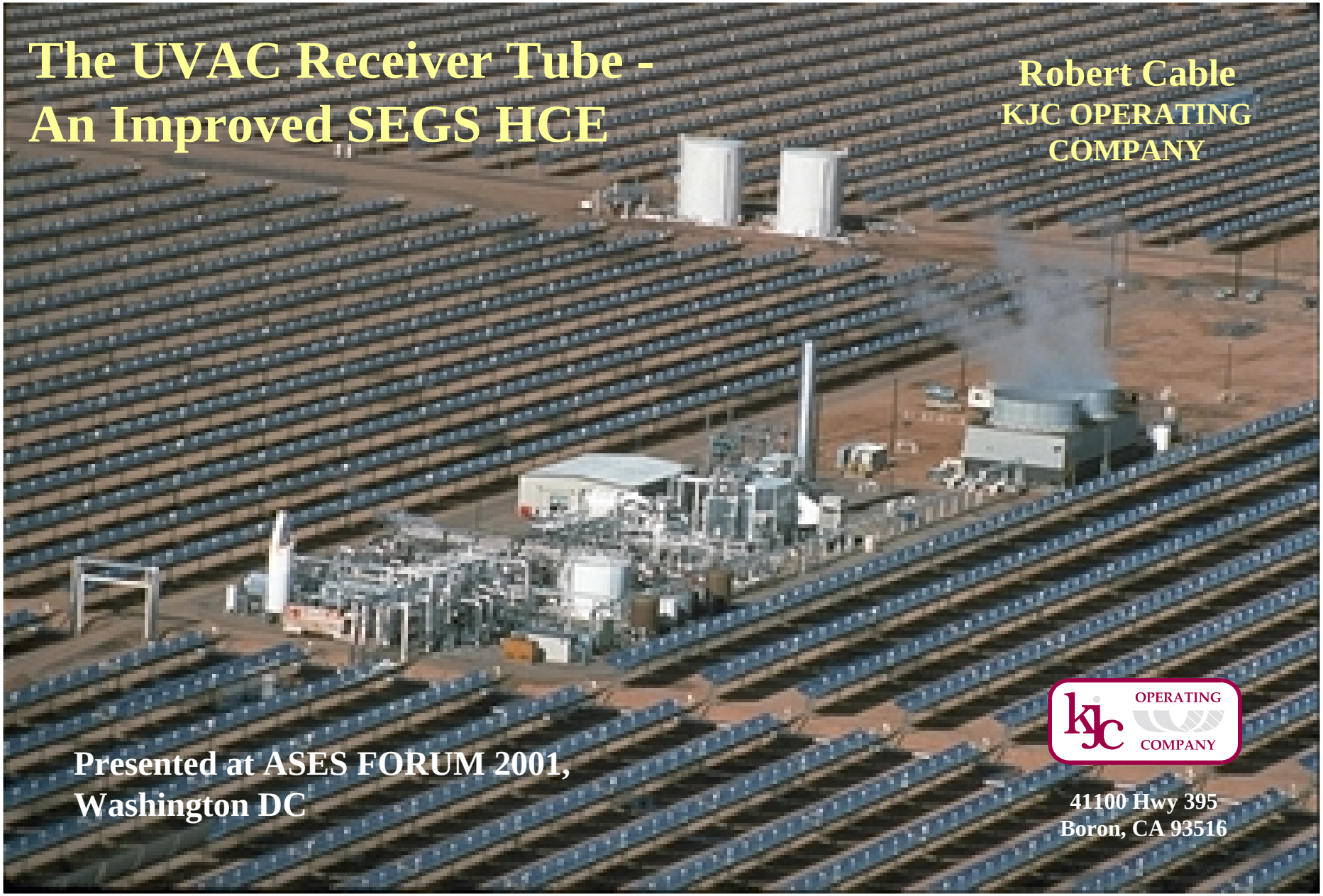
The UVAC Receiver Tube - An Improved SEGS HCE

Robert Cable
KJC OPERATING COMPANY

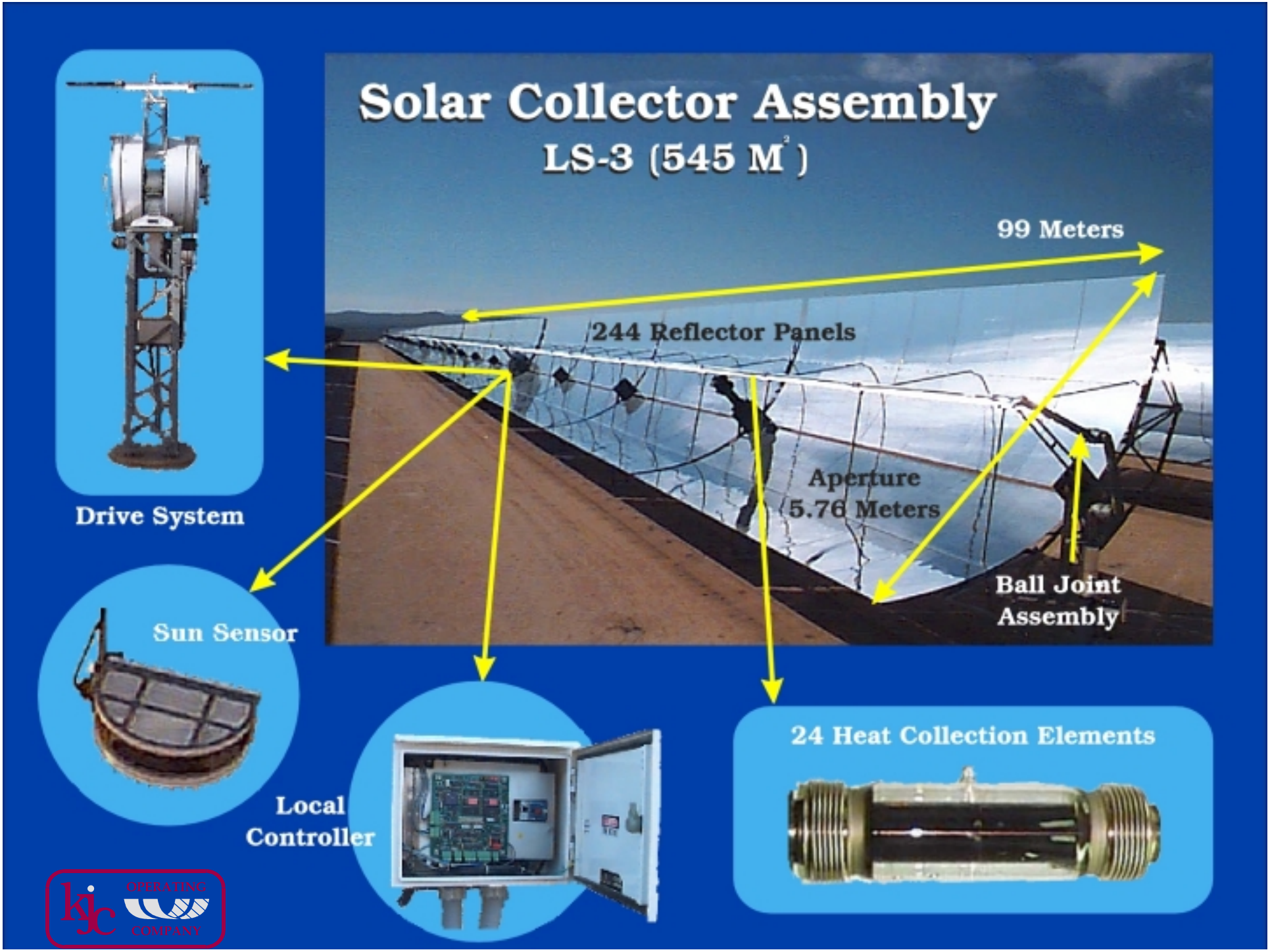


Presented at ASES FORUM 2001, Washington DC

41100 Hwy 395
Boron, CA 93516

OVERVIEW

- HCE Background
- Benefits of Improved UVAC HCE
- Current Results of In Field Testing
- Summary / Concluding Remarks
- Rod Mahoney for Detailed Specs


Solar Collector Assembly
LS-3 (545 M²)
99 Meters
244 Reflector Panels
Aperture
5.76 Meters
Ball Joint
Assembly
Drive System
Sun Sensor
Local
Controller
24 Heat Collection Elements
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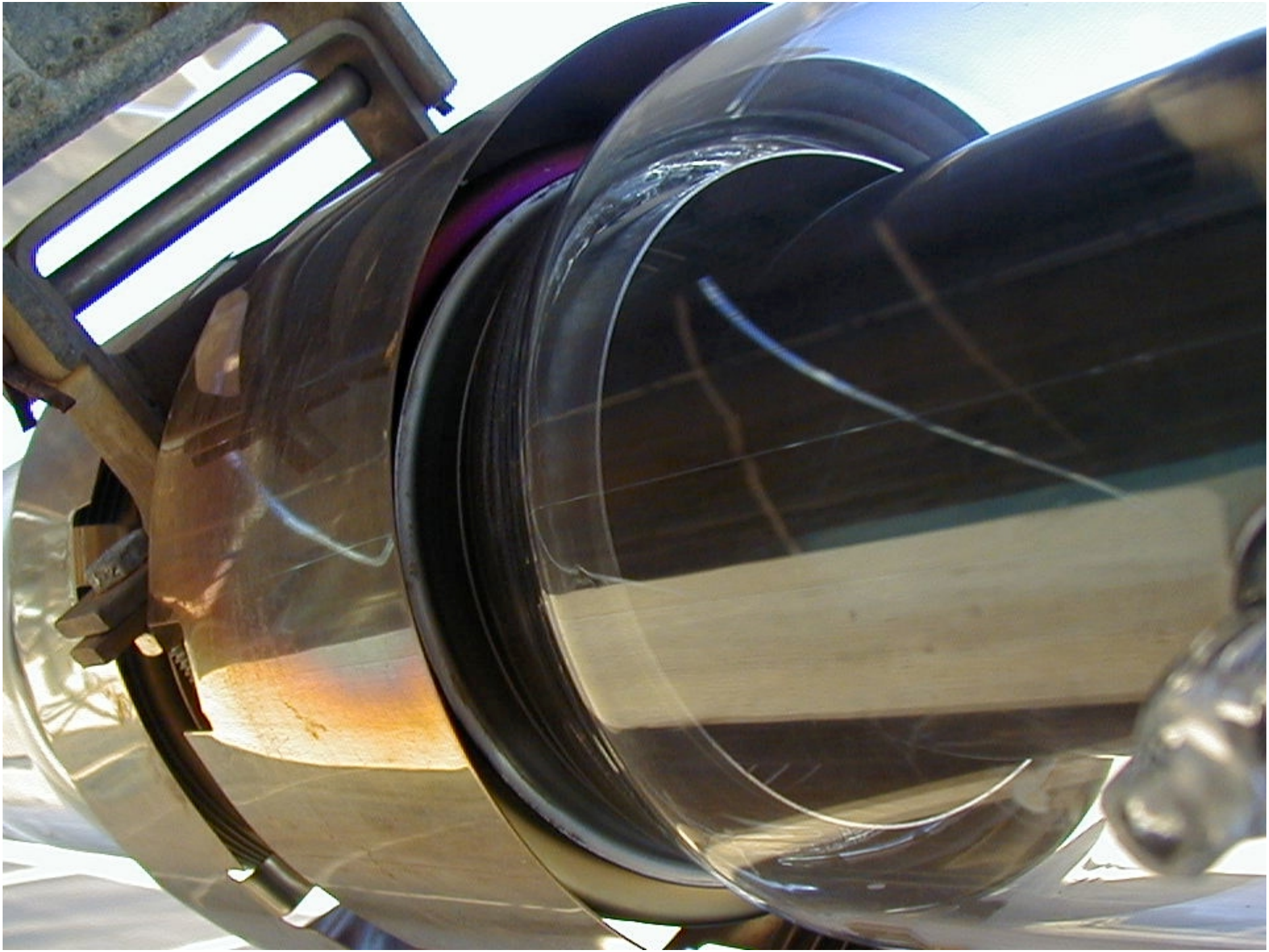
COMPANY



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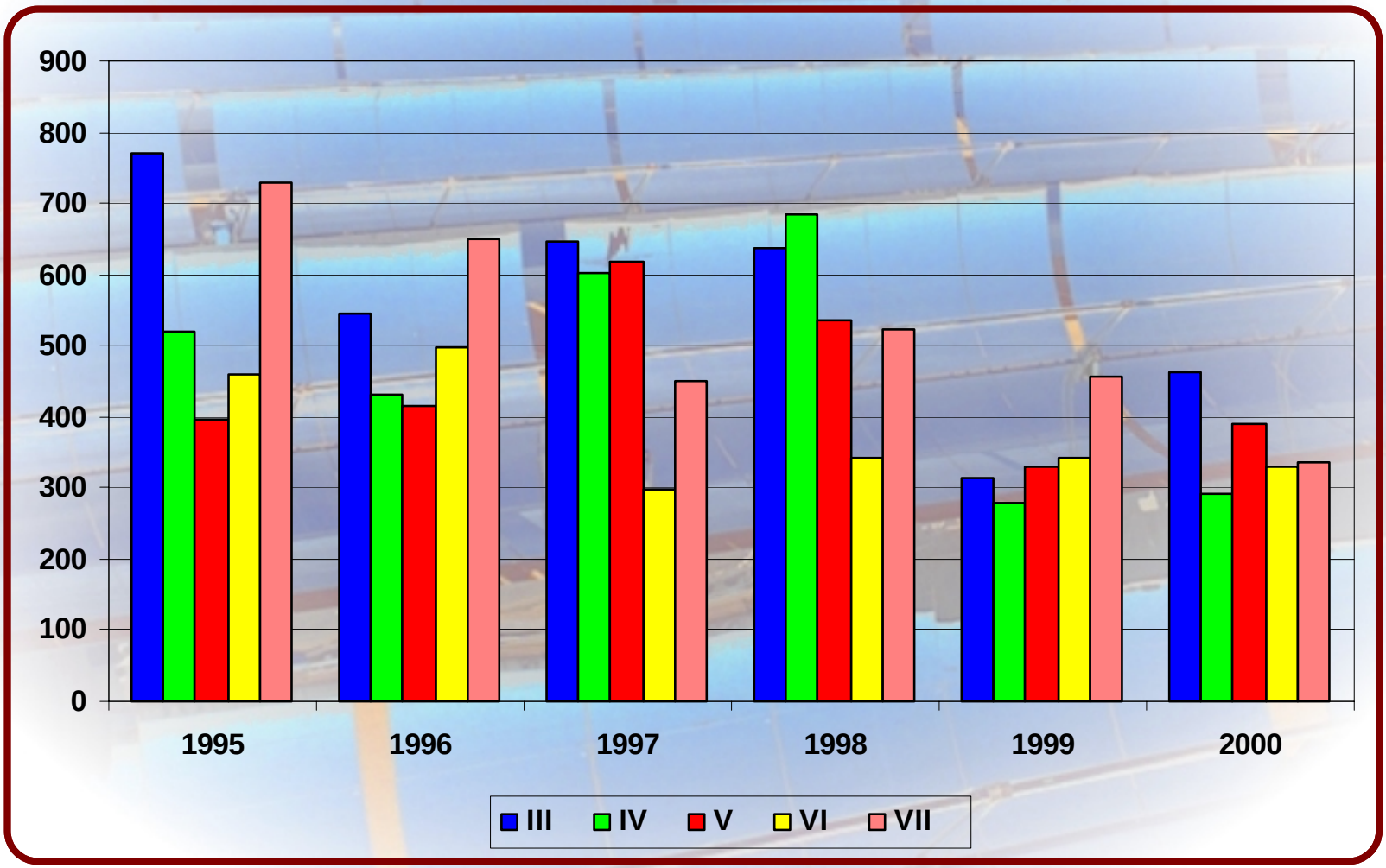
Kramer Junction SEGS HCE Glass Breakage

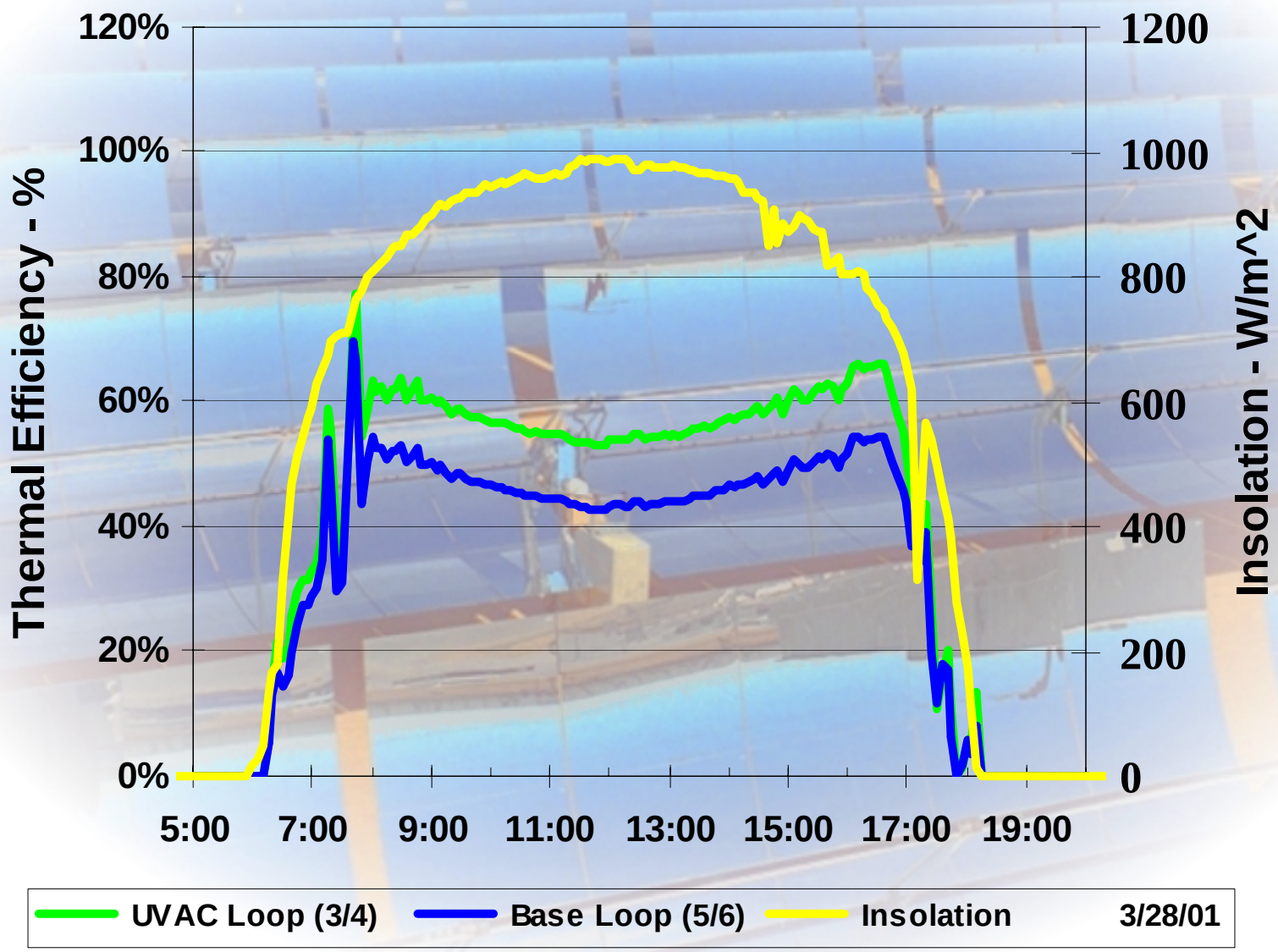


UVAC / Cermet Comparision

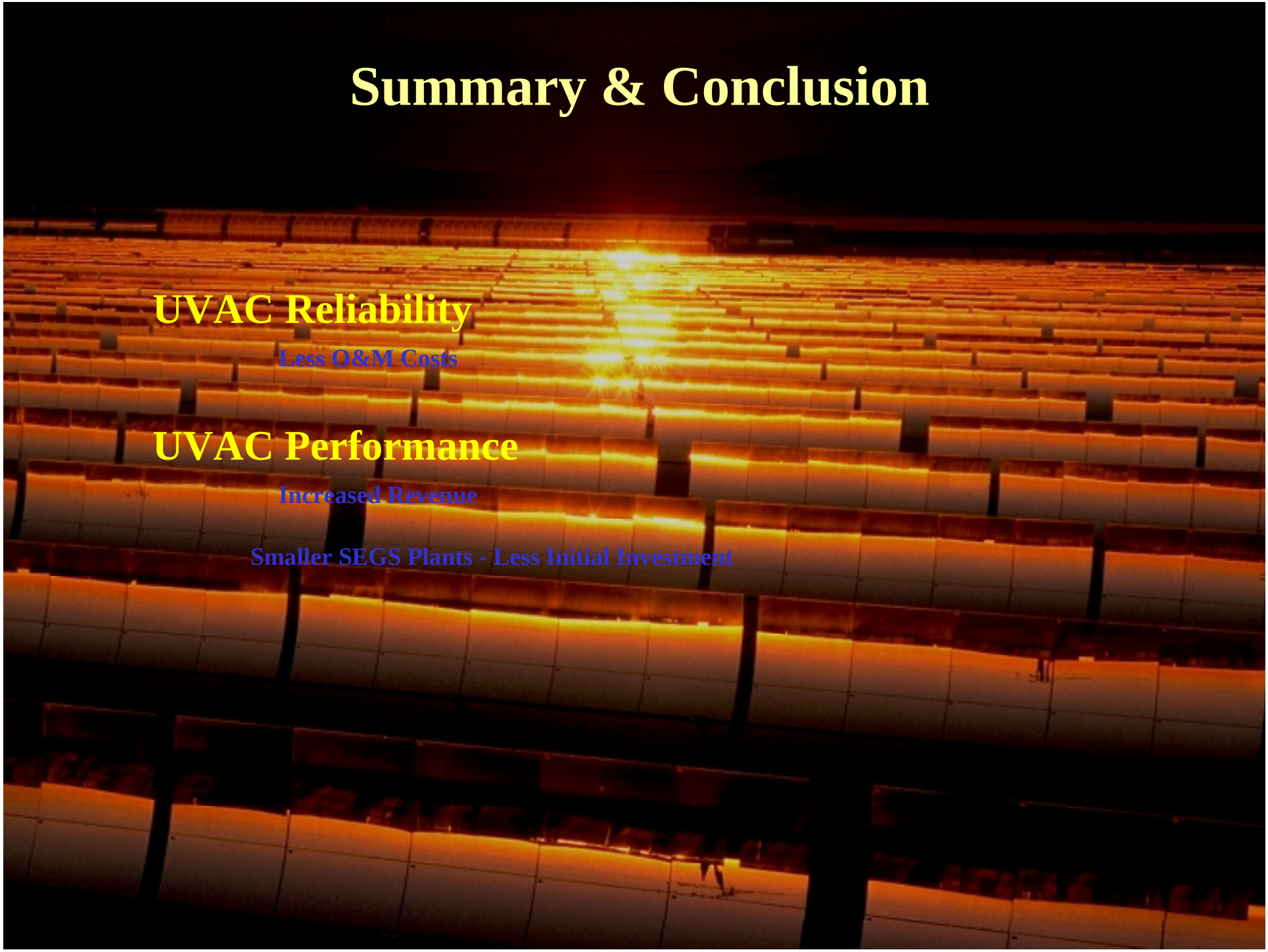
3/28/01

	Insolation	Thermal Heat			Thermal Eff.		
		UVAC	Base	Delta	UVAC	Base	Delta
	W/m^2	kWh	kWh	%	%	%	%
0:00 - 1:00	0	-14	-14	-5%	0.0%	0.0%	0%
1:00 - 2:00	0	-12	-12	-4%	0.0%	0.0%	0%
2:00 - 3:00	0	-11	-11	-3%	0.0%	0.0%	0%
3:00 - 4:00	0	-10	-10	-1%	0.0%	0.0%	0%
4:00 - 5:00	0	-9	-9	1%	0.0%	0.0%	0%
5:00 - 6:00	2	-7	-7	1%	0.0%	0.0%	0%
6:00 - 7:00	332	325	271	20%	19.4%	16.1%	3%
7:00 - 8:00	723	1458	1284	14%	53.0%	46.7%	6%
8:00 - 9:00	858	1984	1659	20%	61.5%	51.5%	10%
9:00 - 10:00	**930**	**2035**	**1673**	**22%**	**58.2%**	**47.9%**	**10%**
10:00 - 11:00	**957**	**2000**	**1628**	**23%**	**55.6%**	**45.3%**	**10%**
11:00 - 12:00	**980**	**1981**	**1599**	**24%**	**53.8%**	**43.4%**	**10%**
12:00 - 13:00	**979**	**1998**	**1605**	**24%**	**54.3%**	**43.6%**	**11%**
13:00 - 14:00	**968**	**2031**	**1640**	**24%**	**55.8%**	**45.1%**	**11%**
14:00 - 15:00	**911**	**2008**	**1631**	**23%**	**58.7%**	**47.6%**	**11%**
15:00 - 16:00	**856**	**1984**	**1626**	**22%**	**61.7%**	**50.6%**	**11%**
16:00 - 17:00	**747**	**1765**	**1457**	**21%**	**62.6%**	**51.7%**	**11%**
17:00 - 18:00	414	399	341	17%	22.2%	19.1%	3%
18:00 - 19:00	11	-40	-45	-10%	1.5%	1.0%	1%
19:00 - 20:00	0	-30	-34	-13%	0.0%	0.0%	0%
20:00 - 21:00	0	-24	-27	-11%	0.0%	0.0%	0%
21:00 - 22:00	0	-21	-23	-10%	0.0%	0.0%	0%
22:00 - 23:00	0	-18	-20	-8%	0.0%	0.0%	0%
23:00 - 0:00	0	-17	-18	-5%	0.0%	0.0%	0%
9:00 - 17:00	**940**	**2005**	**1629**	**23%**	**56.9%**	**46.2%**	**11%**
0:00 - 5:00	**0**	**-11**	**-11**	**-3%**	**0.0%**	**0.0%**	**0%**
19:00 - 0:00	**0**	**-22**	**-25**	**-10%**	**0.0%**	**0.0%**	**0%**

UVAC / Cermet Comparision - SEGS VI



Summary & Conclusion



UVAC Reliability

Less O&M Costs

UVAC Performance

Increased Revenue

Smaller SEGS Plants - Less Initial Investment