

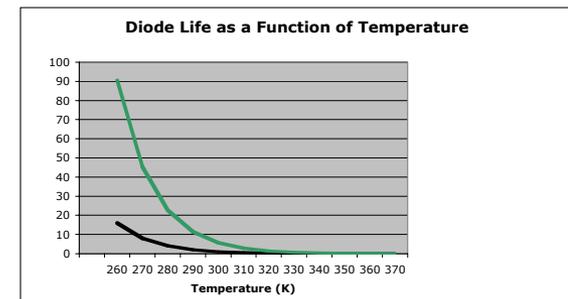
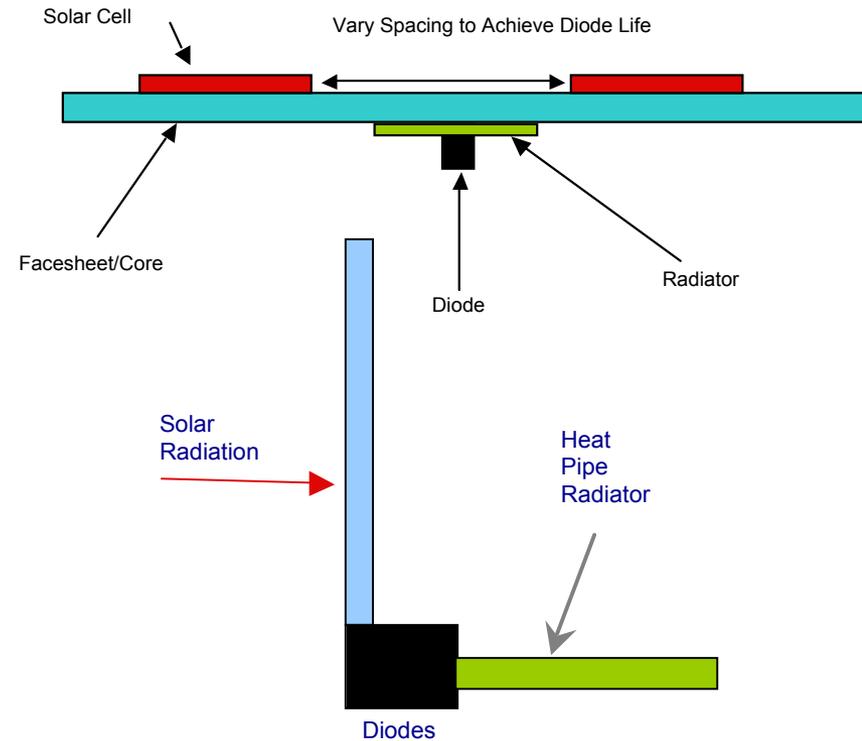
SSP

System Modeling Activities

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System Modeling Activities

- Differentiate Thermal Control Strategies
- Diode Life vs. Temperature - Sets upper limit diode may operate
 - Integrated diode onto blanket
 - Vary solar cell packing in order to achieve acceptable temperature + Facesheet thicknesses not adequate to conduct heat for diode
 - Separate Array and Diodes
 - Decouples solar array temp and array temperature
 - Diode efficiency/life may drive to much lower temperatures than trades for the solar array temps



Results+ Future Work

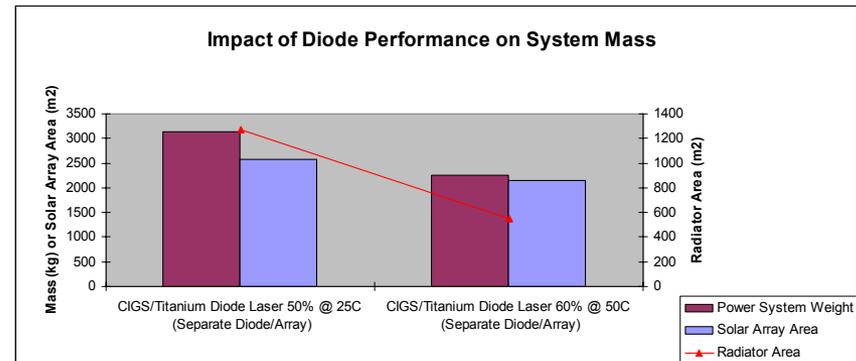
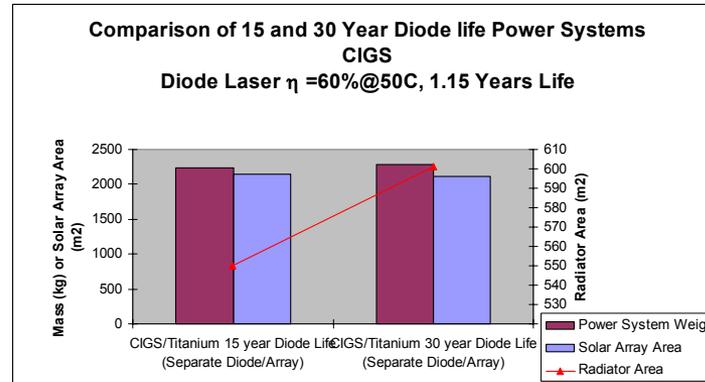
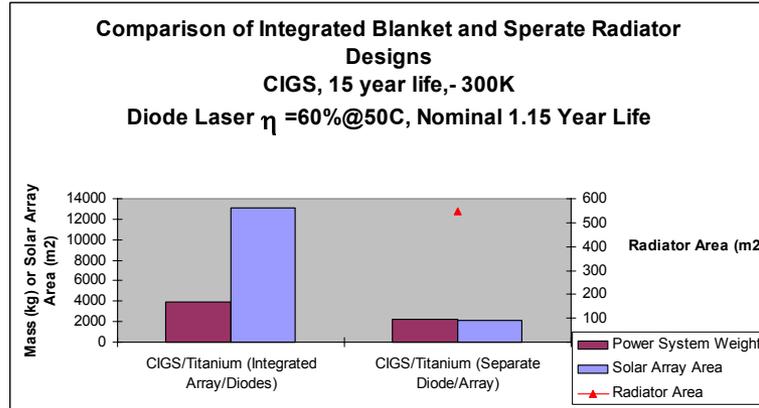
Results

- Thin film arrays
- 60 kWe Ground Output Power
- Baseline Diode Life @ temp = 10,000 hours

Minimum System Mass occurred with separate diode/PV system (30% Fill Factor for Integrated Array/Diodes)

Diode Life changes from 15 to 30 Years based on life has relatively small impact on system (2%)

Diode Baseline performance has relatively large impact on system (20%)



Future Work

- Integrate with detailed structural model
- Model in more detail diode thermal control for both architectures