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# Trough Workshop FY00 Concentrator Plan

August 16, 1999

# Concentrator Overview/Status

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- Goal - Improve concentrator technology to enable troughs to penetrate both near (2 year) and long term (>2 year) markets.
- Current Status
  - SunLab recently issued an RFP resulting in a concentrator development contract with Duke Solar.
  - EuroTrough activities
  - SunLab in-house work on structural mirror panel development, testing & deployment at SEGS plants.
  - Advanced reflective materials for concentrators

# Concentrator Task Justification

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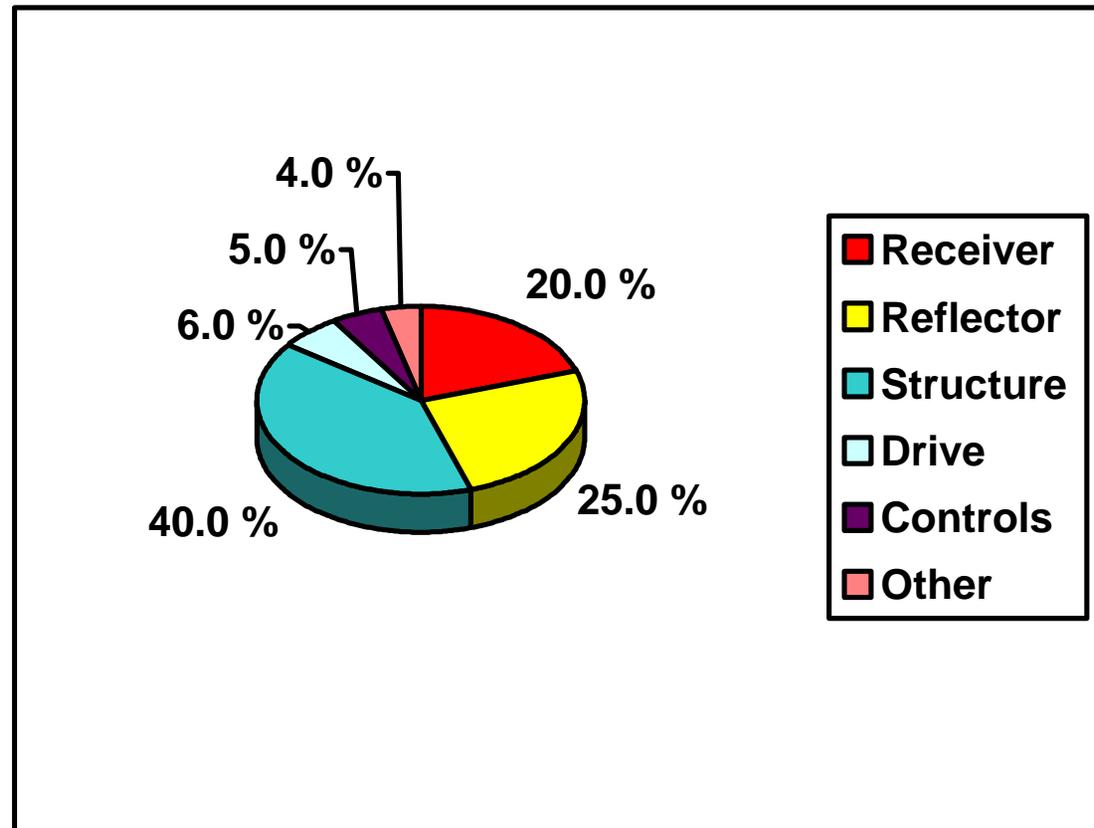
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- Cost of reflector/structure/drive needs to be reduced for plants built in near and long term
  - 80% of Projected Solar Field Costs @ \$215/m<sup>2</sup> attributable to concentrator/support/drive components

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Projected Solar Field Costs: \$215/m<sup>2</sup>



# Concentrator Objectives

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- A. Establish baseline LEC costs and cost goals for 2 year and 5 year timeframes
- B. Develop concentrator to meet near-term (2 year) LEC goals.
- Develop more innovative designs that have potential to meet longer-term LEC goals.

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## Objectives

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A.) Establish baseline LEC costs and  
cost goals for 2 year and 5 year timeframes .

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B.) Develop concentrator to meet near-term  
(2 year) LEC goals.

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C.) Develop more innovative designs that  
have potential to meet longer-term LEC goals.

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# Activities beginning in FY00

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- Objective A.
  - Collect performance/cost data on current designs for use as baseline
    - SunLab/Industry (Priority: M)
  
- Objective B.
  - Evaluate potential of current advanced optical materials to reduce LEC and be used in next plant
    - SunLab (Priority: M-H)
  - Field promising results from above activity
    - SunLab/Industry (Priority: M)
  - Continue development, testing, performance/cost evaluation of structural mirror panels
    - SunLab (Priority: M)

# Activities beginning in FY00

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- Objective B. (continued)
  - Correlate mirror breakage plant data w/ wind load stress analysis predictions
    - SunLab/Industry (Priority: M)
  - Wind load monitoring of next deployed plant
    - SunLab/Industry (Priority: M)
  - Develop automated wind-stow system based on collector loads not wind speed
    - SunLab/Industry (Priority: M)
  - Develop devices to measure incident flux and temperature distribution on absorber
    - SunLab (Priority: M)

# Activities beginning in FY00

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- Objective B. (continued)
  - Improve tools for collector installation and alignment
    - SunLab/Industry (Priority: M-H)
  - Closed loop and sun-sensor tracking improvements (line-focus sensor)
    - SunLab/Industry (Priority: M-H)
  - Develop tool to assist with tilted ground installations
    - SunLab/Industry (Priority: M)
  - Perform Design For Manufacturing Analysis (DFMA) on new designs
    - SunLab (Priority: L-M)

# Activities beginning in FY00

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- Objective B. (continued)
  - Establish O&M cost testing of new collectors at existing plants
    - SunLab/Industry (Priority: M)
  - Improve lab testing capabilities for industry collectors
    - SunLab (Priority: M-H)
- Objective C.
  - Perform mechanical/optical analysis to correlate deflections with annual performance
    - SunLab (Priority: M-H)
  - Accelerate development of advanced reflector materials
    - SunLab (Priority: M)