



*running on*  
**SUNSHINE**

*“We depend ultimately on the sun for almost all of the energy we use today—even fossil fuels are the product of ancient photosynthetic energy conversion.”*

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**DEVENS GUST**

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**MY BOLD IDEA**

In photosynthesis, nature has come up with a wonderful machine for cleanly converting sunlight to useful energy. For more than 30 years I have worked with colleagues Tom and Ana Moore to understand the basic scientific principles underlying photosynthesis. As director of the new ASU Energy Frontier Research Center, I lead a team of faculty and students using what we know about photosynthesis to design systems for harvesting solar energy for human use.

**MY INSPIRATION**

Humanity badly needs a source of energy that is abundant, renewable, inexpensive, clean, and local. We must meet this challenge very soon because our environment, geopolitical situation, and quality of life depend on it. Although this is a difficult scientific problem, I know that it can be solved, because nature, through photosynthesis, has solved it for the biosphere.

**MY CHALLENGE**

Producing useful energy from sunlight is technologically feasible, but current approaches are still too expensive to compete in the marketplace. The great challenge is figuring out how to use the principles of photosynthesis to design efficient, simple, low cost, and reliable solar energy conversion systems for human use.