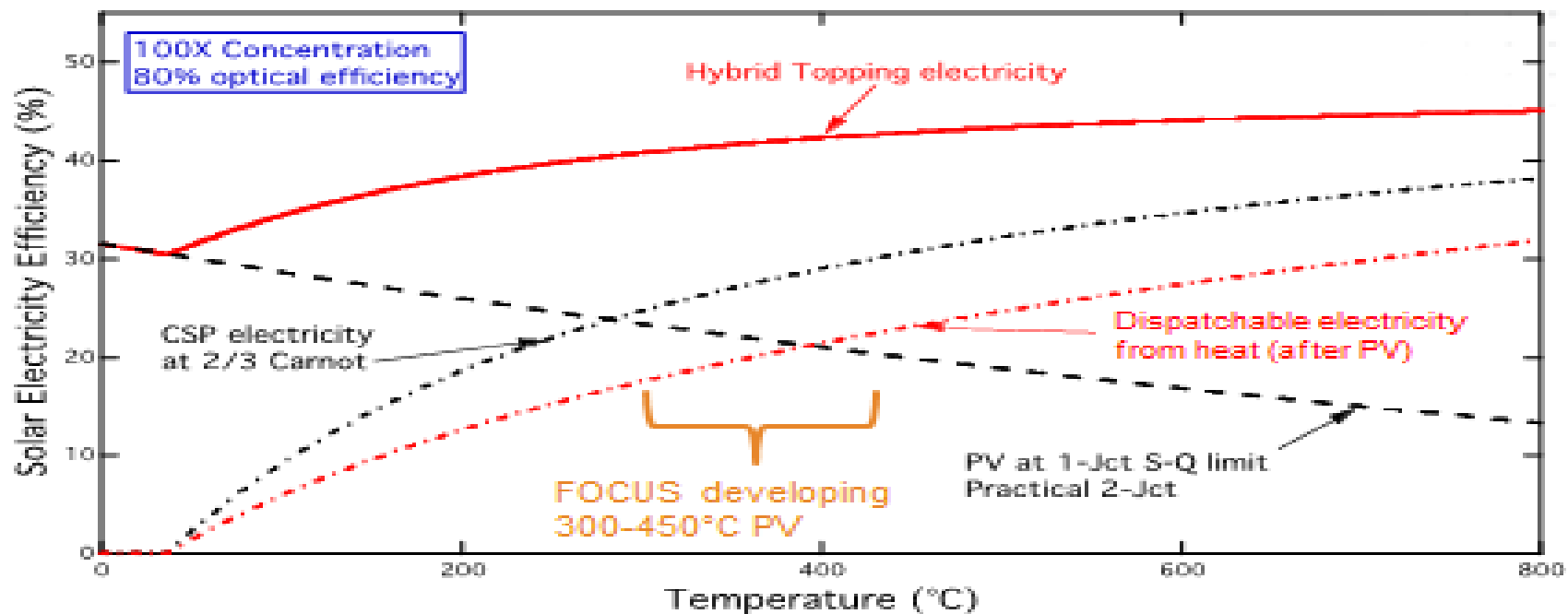


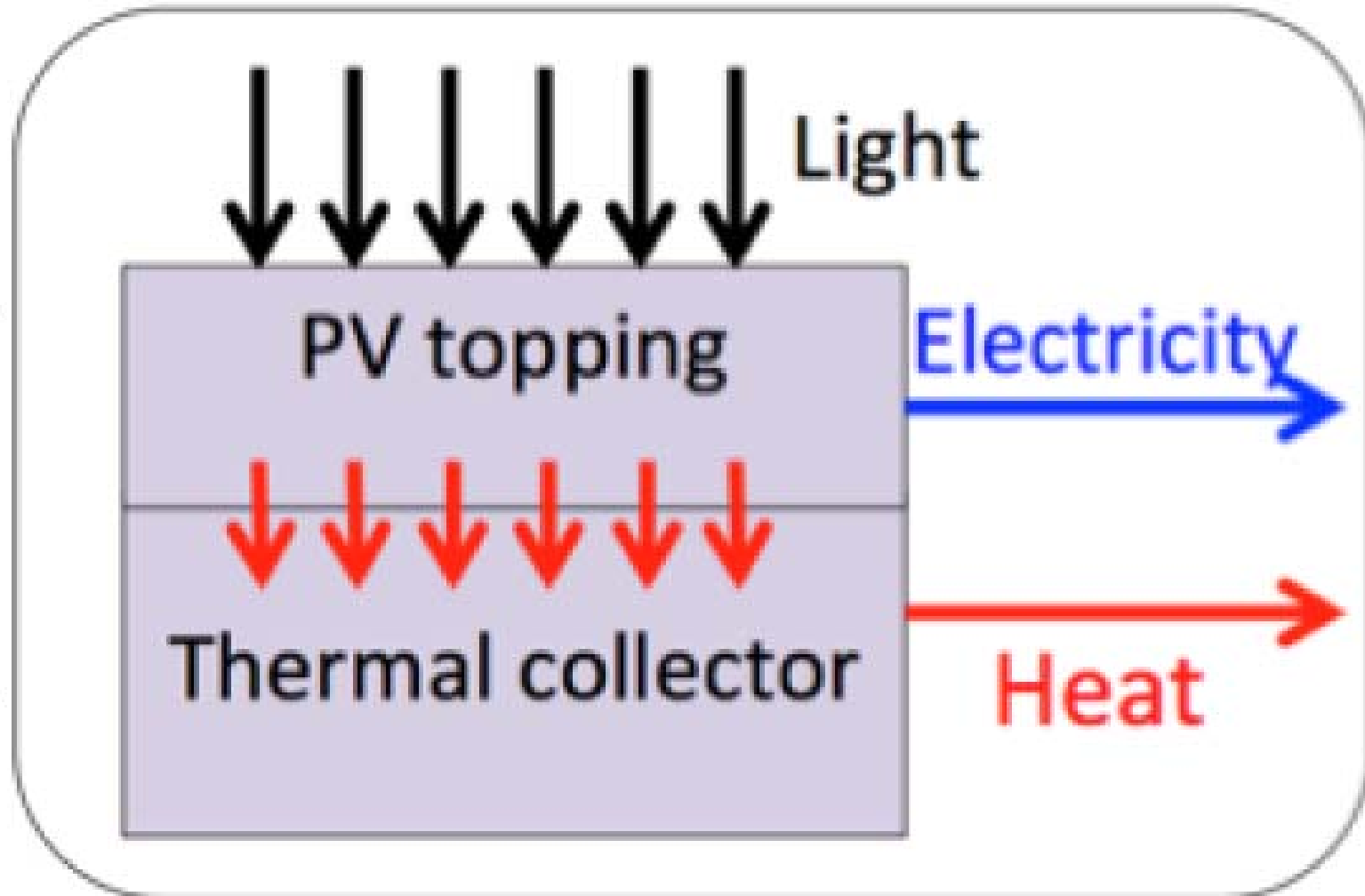
## Towards PV&STE full integration...

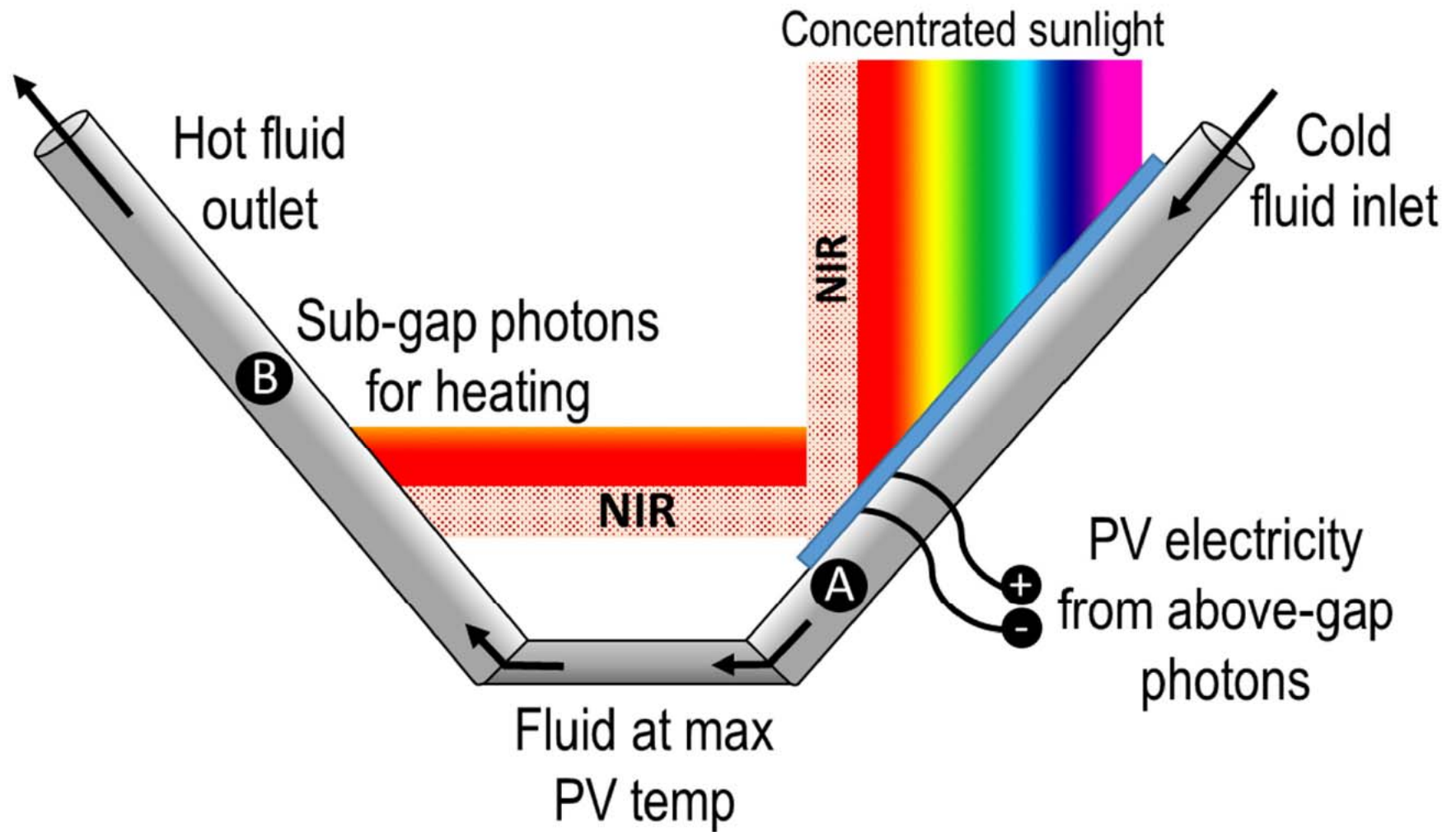
### Topping combines high-T PV and CSP

- Harvests exergy from 5500 °C sun better than CSP
- Collects PV losses for dispatchable heat



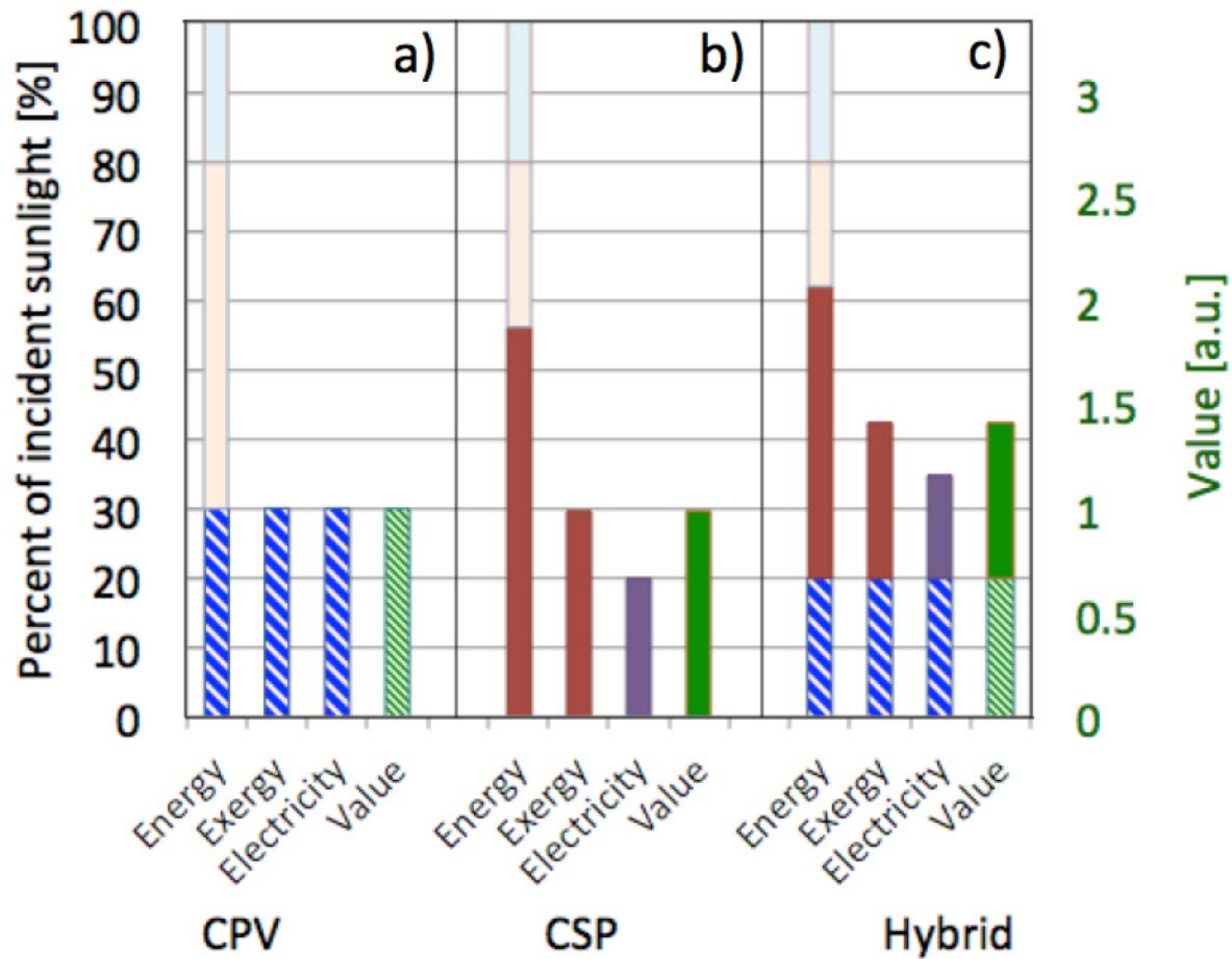
**ARPA-E's *FOCUS* programme**  
***Full-Spectrum Optimised Conversion and***  
***Utilisation of Sunlight***





**Hybrid solar converters for maximum exergy and inexpensive dispatchable electricity**

Howard M. Branz<sup>\*1,2</sup>, William Regan<sup>1</sup>, Kacy J. Gerst<sup>1</sup>,  
J. Brian Borak<sup>1,3</sup> and Elizabeth A. Santori<sup>1</sup>



# How to develop hybrids?

- The future of solar energy in areas with good direct sunlight...
- ARPA-E's *FOCUS* programme: 12 contractants, 30 million USD, some progress made on various concepts, to be continued...
- Research and development need to expand to other countries
- Requires PV and CSP research and industry communities to interact
- What about a new sub-task, common to PVPS and to SolarPACES programmes?