U.S. Department of Energy

HelioCon

Heliostat Consortium for
Concentrating Solar-Thermal Power

HELIOCOMM: A Resilient Wireless Heliostats Communication System

conceptional design • components • integration • mass production • heliostat field

Univ of New Mexico RFP 38488-002
HELIOCOMM Team

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Major Goals and Objectives

- Design of Integrated Access and Backhaul (IAB)-based network & optimization of energy efficiency and latency
- Testing of IEEE 802.11ax and the IEEE 802.15.4 under the IAB-based network
- Dynamic clustering-based network reconfiguration
- Design an entropy-based routing
- Perform dynamic spectrum management in the access and wireless backhaul
- Implement intra- and inter-cluster interference mitigation
- Perform modeling and simulation
- Perform emulation-based experiments
- Partial HELIOCOMM validation at Sandia National Laboratories National Solar Thermal Test Facility (NSTTF)

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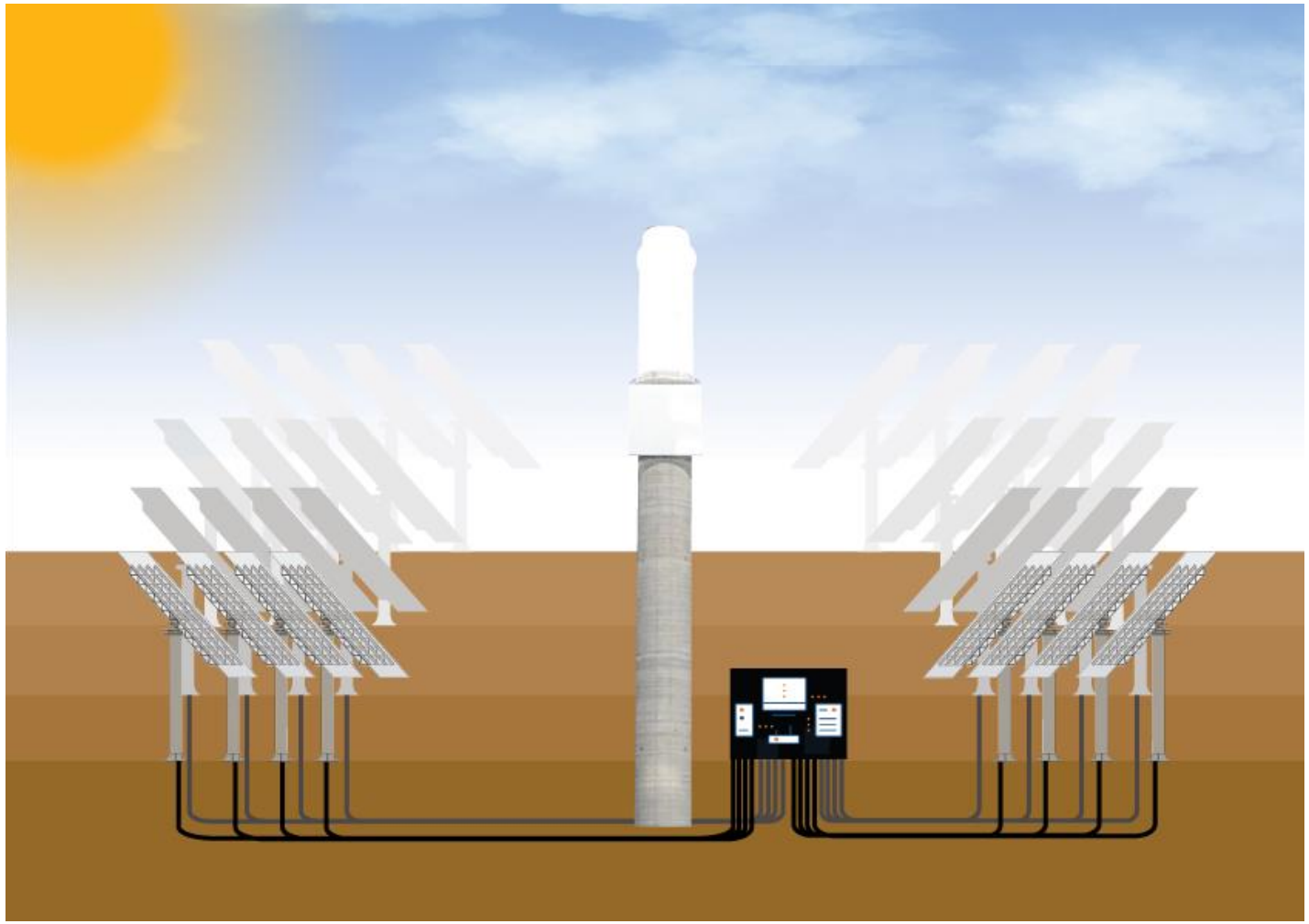
Current Status

Wired communication solutions

- buried copper or fiber optic links
- high cabling-related cost (installation, maintenance, operation-related costs)



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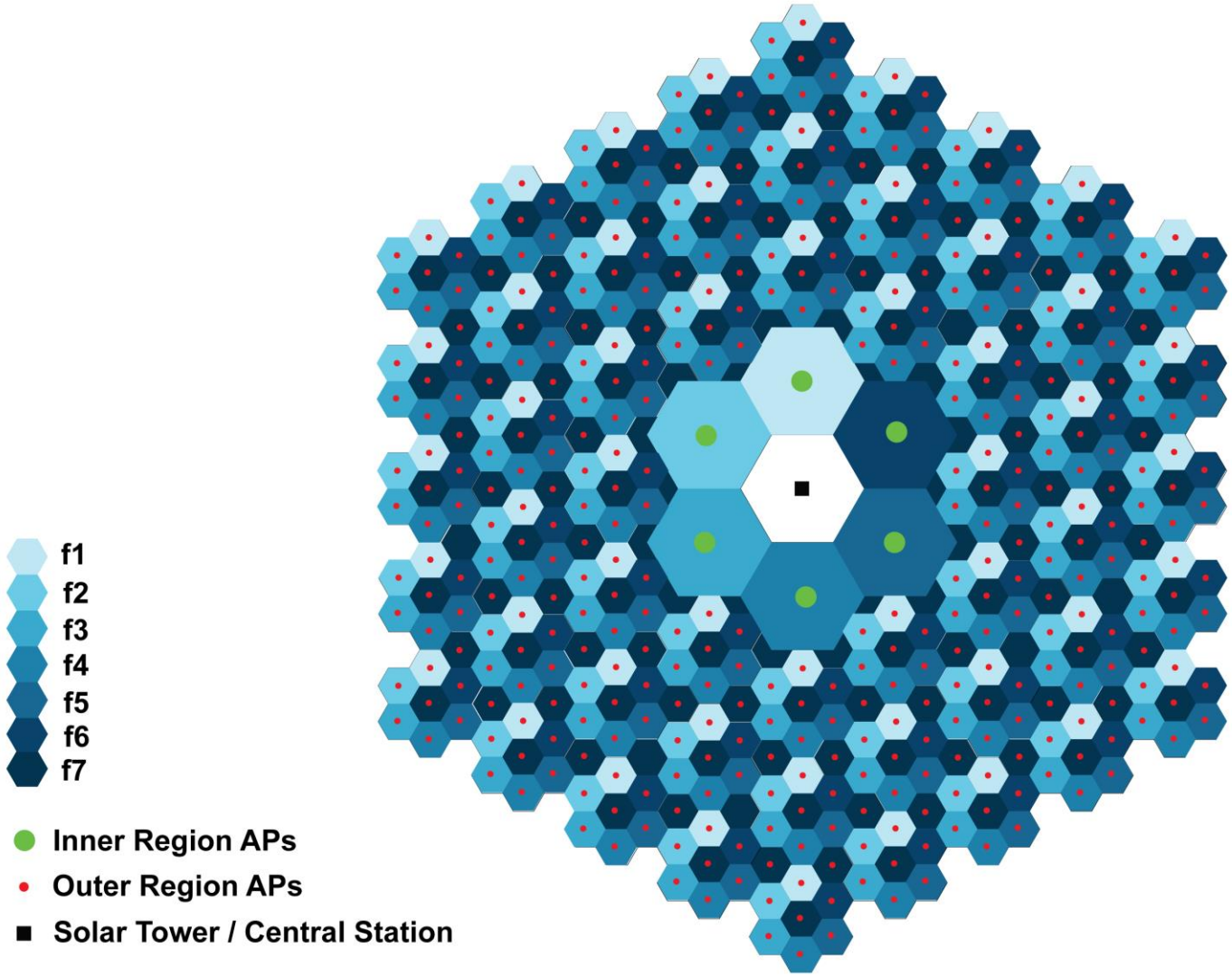
Current Status

Multi-Cellular Architecture



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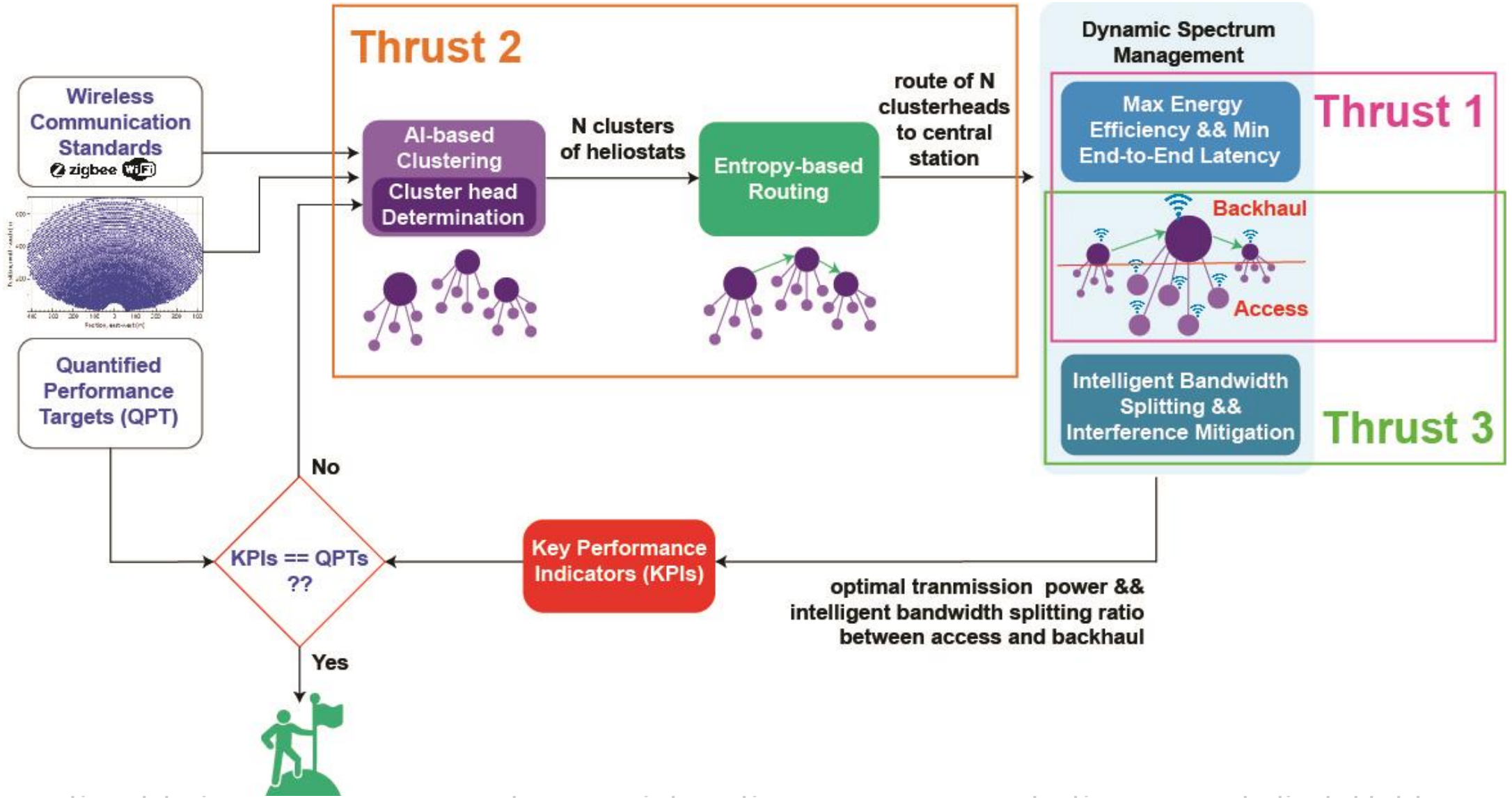
HELIOCOMM System Overview



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Dynamic Resource Management