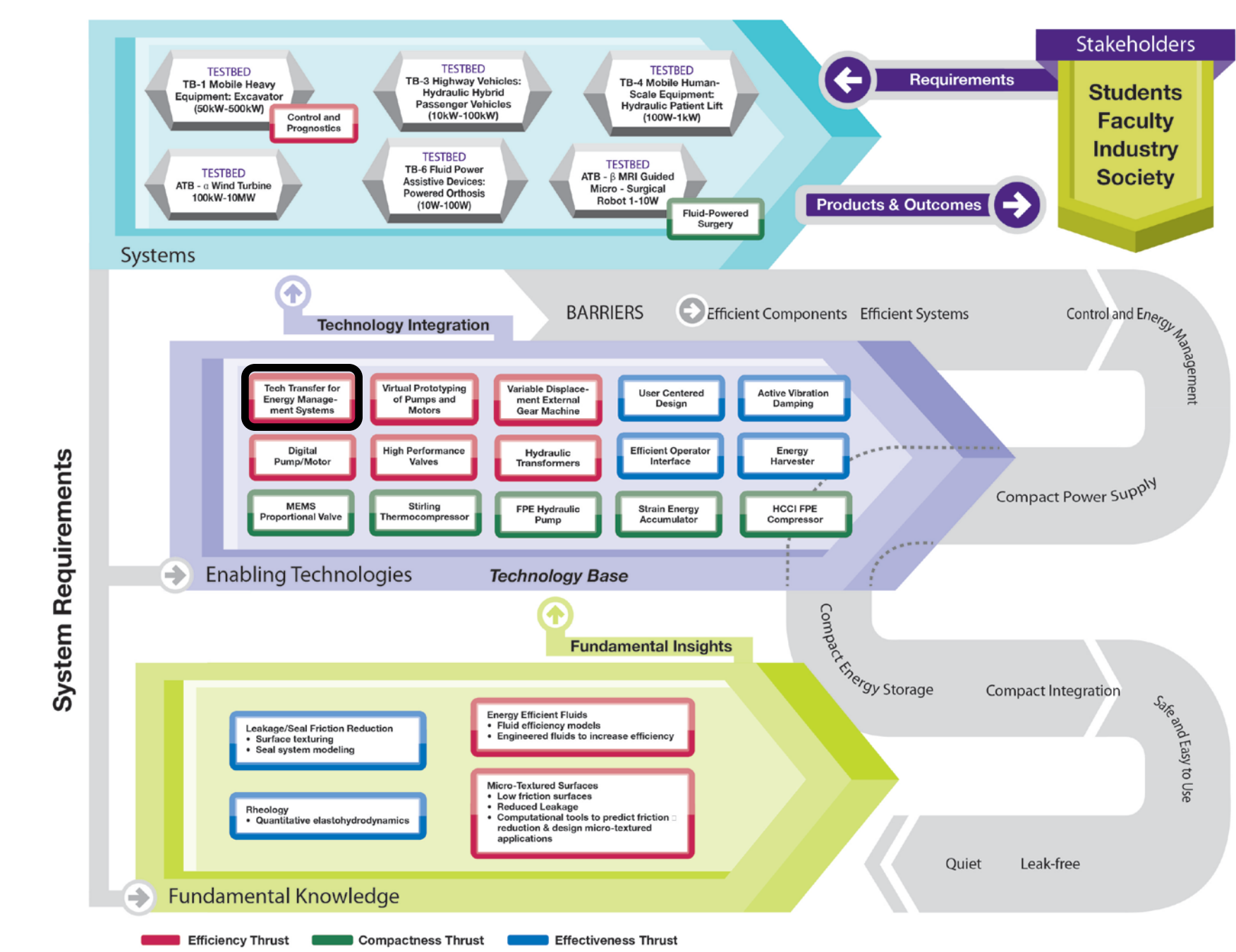


# CENTER FOR COMPACT AND EFFICIENT FLUID POWER

 A National Science Foundation Engineering Research Center

Georgia Institute of Technology | Milwaukee School of Engineering | North Carolina A&T State University | Purdue University | University of Illinois, Urbana-Champaign | University of Minnesota | Vanderbilt University

**Award #EEC0540834: Center for Compact and Efficient Fluid Power**  
**Director: Prof Kim A. Stelson**



## Why fluid power is important?

## What is the major challenge being addressed?

- Survey of 31 industrial companies
- Fluid power transmits 2.1 - 3.0% of the energy consumed in the US
  - 1% reduction in US energy use is worth \$20B
- Average fluid power efficiency is 22%
- Sales of fluid power components exceed \$17.7B
- Sales of systems using fluid power exceed \$226B



- ### Conclusions
- Huge potential for energy cost savings & emissions reductions in current applications
  - Extending the use of energy saving fluid power technologies to new industries and applications will provide additional savings
  - Opportunity for creating new businesses and jobs

## CCEFP Mission & Vision

## CCEFP Vision

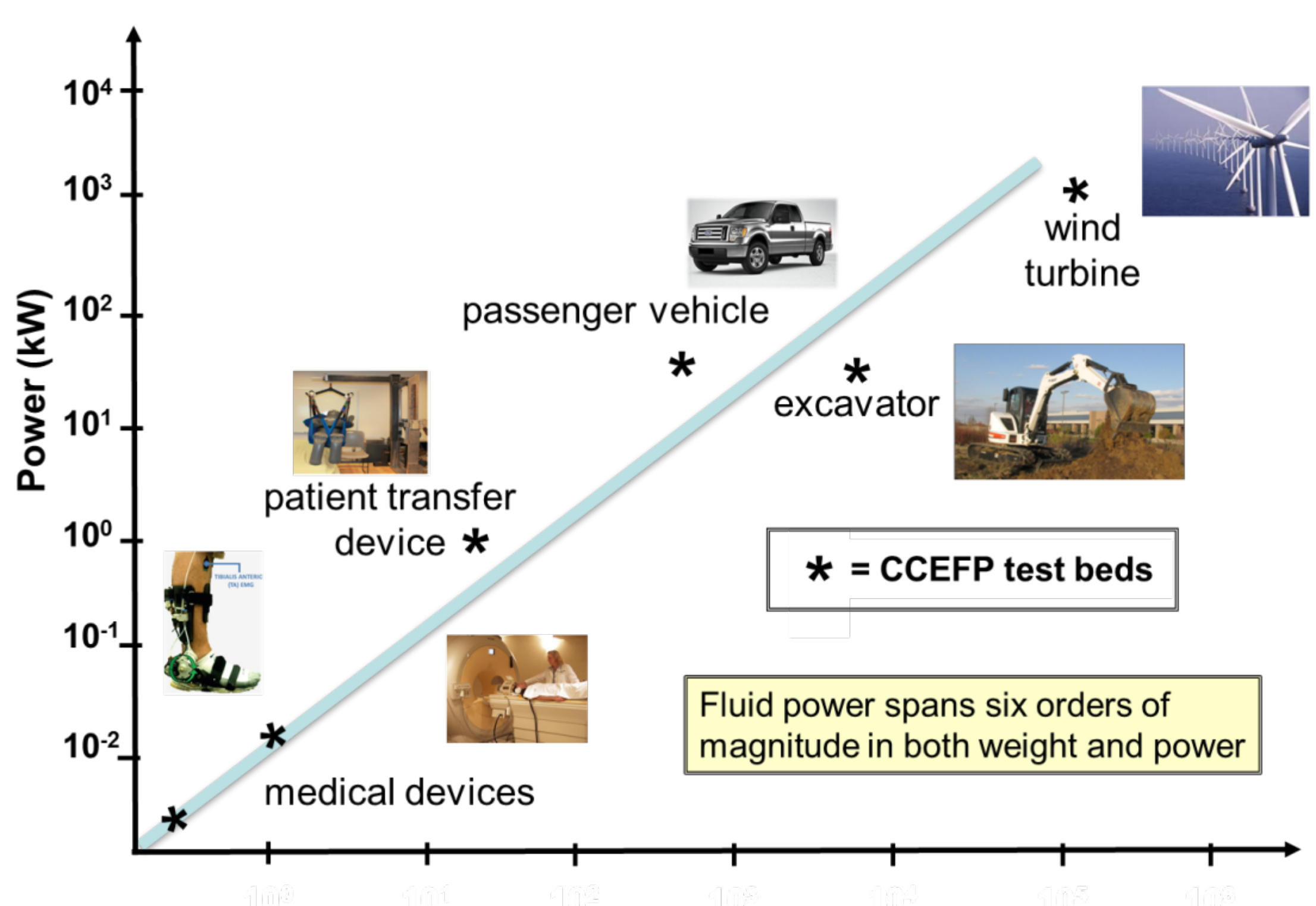
Fluid power is the technology of choice for power generation, transmission, storage and motion control.

## What progress has been made?

- Since its inception:
- 121 BS, 97 MS and 51 PhD students graduated
    - 11 PhDs in the last year
  - 45% of CCEFP graduates working in fluid power
  - 67 student internships in industry
  - 443 publications
    - 24 journal publications in the last year
  - 52 inventions disclosed; 36 patent applications filed
  - 13,232 attendees at short courses, workshops and webinars (5000+ currently attending MOOC!)
  - 70,055 K-12 students attended events

## Who are our industry partners?

## On what test beds is the research being demonstrated?



## CCEFP major goals

Making fluid power compact, efficient and effective

- **Compact** means smaller and lighter for the same function.
- **Efficient** means saving energy.
- **Effective** means clean, quiet, safe and easy-to-use.

### Major goals

1. Doubling fuel efficiency in current fluid power applications
2. Expand fluid power use in transportation
3. Create portable, untethered human-scale fluid power applications
4. Ubiquity - fluid power that can be used anywhere

## Book released citing CCEFP as the model for boundary-breaking collaboration with industry