

# ENERGY RESEARCH AT UNB

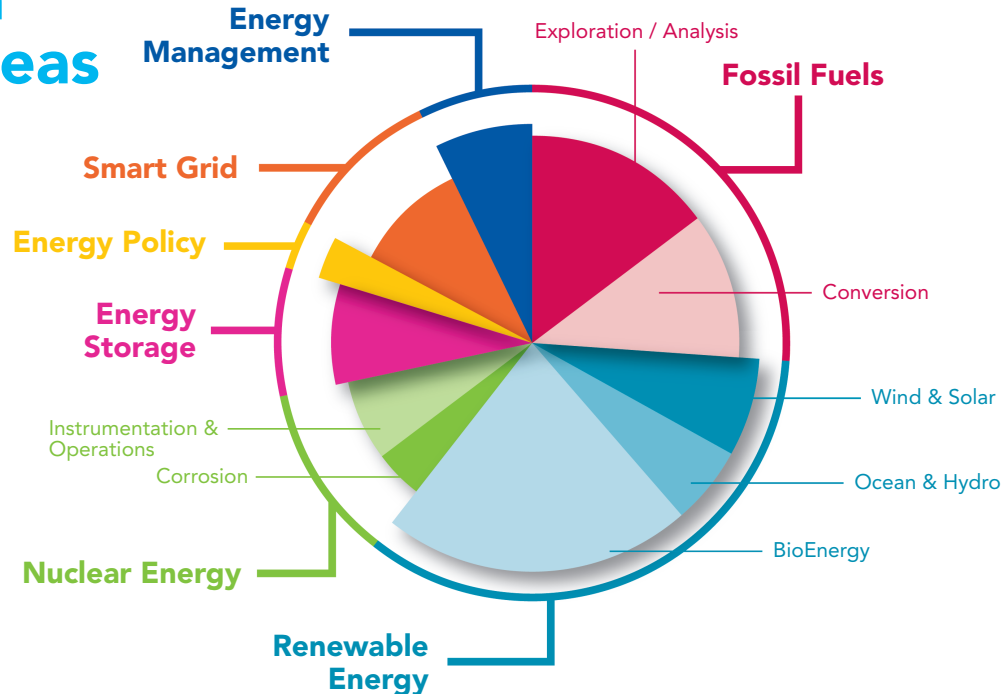


The modern world is faced with a number of challenges related to energy, and a university is a natural forum in which to explore and address many of these issues.

The University of New Brunswick (UNB) is a demonstrated leader in energy research, pursuing discoveries and developing innovative technologies across the full spectrum of energy transformation – generation, transmission, and end use.

Sustainability is the main thrust of UNB's multidisciplinary energy research, with renewable energy making up a large portion of the research portfolio. Renewable bioenergy is a strong focus area, however significant contributions are also made in the wind, solar, hydro, and ocean energy domains. Nuclear energy, considered a low carbon emission power source, is another area of research specialization at the university – particularly as it relates to instrumentation, corrosion and operations. Even fossil fuel research is oriented towards clean-tech – where innovative exploration, analysis and extraction techniques are studied and developed to maximize recovery in a responsible manner. Related research is aimed at producing cleaner transportation fuels, as well as pollutant removal from hydrocarbon energy systems.

## Research Focus Areas



On the transmission side, research into smart grid technologies is a strong and growing area at UNB, building upon expertise in advanced load modeling, as well as communication and control systems that will help shape the electrical grid of the future. Researchers are also exploring new economic and

business models that will help enable these new smart grid technologies. Energy storage, with a focus on hydrogen, as well as organic battery systems, is another research strength at the university. In addition, energy management, particularly as it relates to industrial processes,

is an ongoing research area. Energy policy research at UNB brings together technology and social science researchers to explore diverse issues such as carbon emissions and tax policy, as well as energy value chains and consumer's perceptions on energy.

**60**

Average number of faculty undertaking research in this area each year

**\$6.2 million**

Average amount of funding received for research in this area each year

**65**

Average number of research projects in this area each year

**14** Faculties and Departments pursuing research in this area

- **Arts (Fredericton)**
  - Sociology
- **Arts (Saint John)**
  - Social Sciences
- **Business (Saint John)**
- **Computer Science**
- **Engineering**
  - Chemical Engineering
  - Civil Engineering
  - Electrical and Computer Engineering
  - Mechanical Engineering
- **Forestry and Environmental Management**
- **Science**
  - Biology
  - Chemistry
  - Earth Sciences
  - Physics
- **Science, Applied Science and Engineering**
  - Biological Sciences

**9** Facilities and Groups conducting research in this area

- **Institutes and Centres**
  - Centre for Nuclear Energy Research (CNER)
  - J Herbert Smith Centre for Technology Management and Entrepreneurship (TME)
  - Magnetic Resonance Imaging (MRI) Research Centre
  - Urban and Community Studies Institute (UCSI)
  - Wood Science and Technology Centre (WSTC)
- **Labs and Research Groups**
  - Catalytic Process Laboratory (CPL)
  - Hydrogen Research Laboratory (HRLab)
  - Laser Ablation ICP-MS Laboratory
  - Sustainable Power Research Group (SPRG)

**3** Research Chairs engaging in research in this area

- **Canada Research Chairs**
  - Chemical Processes and Catalysis
  - Materials Science MRI
- **Other Research Chairs:**
  - NSERC/NB Power/AECL Chair in Nuclear Engineering