

IEEE IFEC'19

2019 International Future Energy Challenge
College Student Competition <http://www.energychallenge.org/>

REQUEST FOR PROPOSALS

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Please visit

<http://www.energychallenge.org>
for more detailed information about
schedule and proposal submission

IFEC Introduction

IFEC is an international student competition for innovation, conservation, and effective use of electrical energy, which is open to college and university student teams from recognized undergraduate engineering programs in any location.

The competition is sponsored by the Institute of Electrical and Electronics Engineers (IEEE) Power Electronics Society (PELS), Power & Energy Society (PES), Industry Application Society (IAS) and Power Sources Manufacturers Association (PSMA).

Topic: Motor drive for an electric bicycle

Preliminary Specifications:

- Input: V_{in} : 12Vdc nominal from specified 20Ah battery pack.
- Output: 3-phase BLDC motor drive; V_{out} : 36V; P_{out} : 500W; variable speed.
- Power Density: $>15 \text{ W/cm}^3$ without fan.
- Converter temperature rise $< 40^\circ\text{C}$ with 500W @ 25°C Ambient.
- Judgment criteria will include energy consumption for typical drive cycles.

Final Competition Location

University of Wisconsin-Madison, USA

Participation

Participation is on a proposal basis. Those schools that are interested must submit a proposal to the topic chair before the proposal deadline. Each Proposal will be judged by a distinguished panel of volunteer experts from the IEEE and from industry. Schools with successful proposals will be notified and qualified for the rest of the competition. Deadline for each period will be posted on the IFEC website. The finalist teams will be invited to a competition event in summer of 2019.

There will be a Grand Prize of \$10,000 and three additional awards granted at \$5,000, \$3,000 and \$1,000 each. Competition will include design aspects, dynamometer testing and riding on race-track.

Important Notice:

- ◇ Each university can support only one team.
- ◇ Each team should have at least 4 members.
- ◇ Interdisciplinary teams are encouraged.
- ◇ Teams should be composed of primarily undergraduate students.
- ◇ Graduate students can participate in team to provide high-level support.

Schedule

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|----------------------------|--------------------|
| Workshop at ECCE 2018 | September 25, 2018 |
| Proposal Deadline | October 19, 2018 |
| Notification of Acceptance | December 21, 2018 |
| Workshop at APEC 2019 | March 17, 2019 |
| Notification of Finalists | April 15, 2019 |
| Final Competition | July 29-31, 2019 |

