

# Oregon TECH

## OFFICE OF THE PRESIDENT

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Higher Education Coordinating Commission  
c/o Ben Cannon, Executive Director  
775 Court St. NE  
Salem, OR 97301  
[ben.cannon@state.or.us](mailto:ben.cannon@state.or.us)

Dear Director Cannon and Members of the Higher Education Coordinating Commission,

At the last full Commission meeting in June, you discussed prioritizing the HECC's proposed list of Policy Option Packages based on student outcomes and alignment with the HECC's strategic plan.

We are writing to express our support for the Oregon Renewable Energy Center (OREC) as one of the HECC's top priorities. In addition to the information that the HECC requested for all POP proposals in March, attached as Appendix C, we prepared a short description of how OREC contributes to the retention and graduation of Oregon students and increases student learning outcomes.

We truly appreciate your thoughtful consideration of this request, as it supports student and faculty success, small business development, and rural economic development in Oregon.

Please contact either of us, or Lita Colligan, Associate Vice President for Strategic Partnerships and Government Relations, and the Chair of our OREC Task Force, if you have any questions about OREC or our Policy Option Package request.

Sincerely,



Christopher G. Maples  
President



Jay Kenton  
Interim VP Finance and Administration



## OREGON RENEWABLE ENERGY CENTER (OREC)

Relevant learning experiences for students, industry-influenced curriculum, internships, senior projects and applied research at all levels are in Oregon Tech's DNA.

Applied research and experiential learning lead to student success and positive community outcomes. (91% have jobs within 6 mos; \$54K average starting salary; high-impact projects)

### ▶ **Experiential Learning**

- ▶ Internships, MECOP, Externships and Industry-supported Projects, Capstones, Multi-disciplinary Essential Studies Projects

### ▶ **Applied Research and Sponsored Projects**

- ▶ OREC and Geo-Heat Center provide advice for small businesses on utilizing clean energy and how to tap into geothermal resources for low-cost power
- ▶ Applied research with industry partners: prototypes, storage technologies, testing for energy savings: KersTech, Arcimoto, NW Renewable Energy Corp, others

### ▶ **Impact on Access, Affordability, Student Success, Equity:**

- ▶ Data shows that students matriculate, complete and achieve success at higher rates if they are engaged in community service and applied learning;
- ▶ Students receive financial and academic support from many of their community-based activities (paid internships, externships, and applied research projects);
- ▶ Many strategic partnerships are focused on achieving greater equity in recruitment, retention and experiential learning.

### ▶ **Alignment with HECC's Goals and Strategic Plan**

- ▶ Impact on 40-40-20, market demand, high-demand employment opportunities:
  - ▶ Applied research enhances job readiness through relevant experiential learning
  - ▶ Inspires youth towards college readiness and high-demand career pathways
  - ▶ Connects higher education with employer needs
  - ▶ Inspires degree completion
  - ▶ Increases retention and graduation of students
  - ▶ Provides stipends and student pay to improve affordability
  - ▶ Enhances university, industry and community partnerships

### **Relevant to university mission:**

Teaching + Research + Service in a community context=**Learning+ Discovery + Engagement**

Community engagement and applied research brings Oregon Tech's service mission to life while enhancing university and student competencies to address social issues.

<b>Oregon Renewable Energy Center</b>	<b>Student Experiences Leading to Outcomes: Retention, Career Pathways, High-Demand Degrees and Jobs</b>			
Activities	Experiential Learning  Service Learning	Faculty-Student Research	Talent Development  Relevance to Career Path	Industry-supported Capstone and Essential Studies Projects
Technical Assistance to small businesses and communities	X		X	
Geo-Heat Center – access to repository of information and training on use of geothermal energy	X		X	
Developing prototypes for solar, wave, electric vehicle and energy efficiency devices	X	X	X	X
Testing the efficiency and manufacturability of new products	X	X	X	
Integrating renewables with other energy sources utilizing geothermal and solar installations as learning labs	X	X	X	
Battery characterization and testing	X	X	X	
Optimization of hybrid control systems	X	X	X	X
Building and testing customized components to reduce production costs	X	X	X	X
Selecting materials, assessing strength of materials for manufacturability	X	X	X	X
Remote monitoring of solar energy systems	X	X	X	
Utilizing geothermal to accelerate food and agricultural products	X	X	X	X

For more information about Oregon Tech's Oregon Renewable Energy Center, contact Lita Colligan, Associate Vice President, [lita.colligan@oit.edu](mailto:lita.colligan@oit.edu); 503-821-1247.

## Appendix C: Oregon Tech: Oregon Renewable Energy Center

### Section 2: Development of Budget Requests for Funding that is not formula-driven

#### C. For those programs **not** subject to a proposed expansion, reduction, or elimination:

1. Please provide the 2015-17 appropriation or allocation and the 2017-19 state appropriation or allocation necessary to maintain current program operations and outcomes.

The Oregon Renewable Energy Center (OREC) received no direct state appropriations in 2015-17 and is seeking \$985,000 in 2017-19.

#### D. For those programs subject to a proposed expansion, reduction, or elimination:

1. Describe the nature of the request. Provide a description of the program the funding request supports, the clients that it serves and the frequency at which those clients receive service. Describe the purpose of the program and how it achieves that purpose. Describe how the program is delivered and what partners are necessary to guarantee success of the program.

As a public purpose, applied research center created by the Oregon State Legislature in 2001 ([ORS 352.221](#)), the Oregon Renewable Energy Center (OREC) speeds the integration and optimization of renewable energy resources with current power generation systems, and accelerates clean energy technologies in collaboration with industry partners.

#### **OREC leverages globally distinguished capabilities at Oregon Tech.**

- First university in North America to reach the goal of generating most of the electrical power for its campus.
  - Two geothermal power plants and testing sites, including the 280kW Geothermal power plant and the 1750kW geothermal plant.
  - 7,800 ground-mounted solar electric panels on 9 acres of hillside at the Klamath Falls campus, with a total capacity of just under 2 megawatts.
- First ABET-accredited BS in Renewable Energy Engineering in the world; also offers a Master's degree in Renewable Energy Engineering.
- Home of the Geo-Heat Center, an internationally renowned repository of information and technical advice on geothermal energy development.

Oregon serves small and medium-sized companies seeking a university collaborator to prototype, test, validate and accelerate clean tech products, and renewable energy applications. OREC's geo-heat center maintains a geothermal library of over 5,000 publications, and provides information and technical assistance on the use of geothermal energy to thousands of constituents worldwide, with a focus on assisting small Oregon-based businesses with applications of geothermal energy.

#### **Partners**

OREC and Oregon Tech currently works with a multitude of partner industry organizations, universities, and community-based economic development entities. The partnerships help OREC expand its reach to small and medium-sized companies, fulfill its mission for public service in energy systems and applied research, and engage undergraduate and graduate students in relevant experiential learning to prepare the next-generation energy workforce.

**Industry Partners (partial list)**

- Arcimoto
- Drive Oregon
- Green Lite Motors
- Kers Tech
- Manufacturing 21 Coalition (M21)
- NW Collaboratory for Sustainable Manufacturing
- Northwest Renewable Energy Corp.
- Oregon Manufacturing Extension Partnership (OMEP)
- Oregon Solar Energy Industry Association
- Oregon Aviation Industries
- Pacific Northwest Defense Coalition (PNDC)
- Pacific Power
- PGE
- Powin Energy
- Smart Grid Oregon
- Sustainable Valley Technology Group

- Klamath IDEA
- Oregon BEST
- Oregon Innovation Council
- Oregon Metals Initiative
- Oregon Wave Energy Trust
- South Metro-Salem STEM Hub
- Southern Central Oregon Economic Development District (SCOEDD)

**University Partners**

- PSU: Oregon Transportation Research and Education Consortium (OTREC/NITC)
- PSU: Power Engineering Lab (ETIC-funded collaboration)
- UO: Center for Advanced Materials Characterization in Oregon (CAMCOR) and Support Network for Research and Innovation in Solar Energy
- UO 4+1 Industrial Internship Program
- Great Basin Center for Geothermal Energy

**Community-based Partners**

- Klamath County Economic Development Association (KCEDA)

2. Identify the amount that is being requested, by fund type, and the number and classification of positions and FTE requested, if any. Provide explanation for any costs that are not directly related to positions and position-driven services and supplies.

Expense	Description and classification	State Program Funding	Other Funding	Comments
OREC Director	1 OREC Director @ \$120,000 + \$60,000 OPE for two years  Unclassified	360,000		Manage OREC, oversee centers of expertise and laboratory facilities, develop sustaining funding, work with Provost on faculty appointments to applied research center; manage Sponsored Research Office and VP Research functions.
Five applied research faculty positions	Half of salaries for 5 @ \$125,000 including OPE x 2 years  Unclassified faculty positions	\$625,000 (OREC covers half of the salaries for applied research)		Faculty positions include part-time teaching of undergraduate and graduate courses, collaborations with companies on applied research projects, commercialization of research, leverage of private and federal funds.

Administrative and Grant Writing Support	1 Admin Assistant @ \$60K including OPE x 2 years; Classified position		\$120,000	Oregon Tech will support this function through grants and sponsored projects administrative offices.
	1 Grant Writer/ Grant Manager @\$100k including OPE x 2 yrs. Unclassified position		\$200,000	Oregon Tech will support this function through grants and sponsored projects administrative offices.
Research Labs, tied to industry needs, and energy curriculum	\$100,000 each x 5 researchers		\$500,000	One-time costs; future shared lab facilities will be grant funded in collaboration with other university partners or privately funded with business partners.
Total		\$985,000	\$820,000	Biennium

3. Explain how the request will advance the 40/40/20 goal, if appropriate. Include the impact of the request on the 40/40/20 goal, including the timeframe when the results will be measurable. OREC's projects will increase the relevance and quality of the student experience at Oregon Tech, increasing output of Bachelor's and Master's level engineering students, while meeting the economic development needs of companies in rural Oregon. Undergraduate and graduate students will participate in industry research projects at the technology readiness level of 3 – 7, providing career-related learning, increasing educational attainment and global competitiveness. OREC will offer multi-disciplinary projects for students across all disciplines in the College of Engineering, Technology and Management to ensure that Oregon Tech can reach its 40-40-20 goals by 2020. Success will be measured within two years through the following metrics:

- Value of contracts, grants or revenue from sponsored applied research
- BS and MS-level degrees awarded by Oregon Tech in energy and related fields
- % Employment of Oregon Tech graduates in Oregon
- # internships and industry-supported undergraduate/ graduate projects, related fields

6. Indicate if the request requires or supports proposed statutory changes.

OREC has been authorized in statute but never provided with a direct appropriation, as has been provided to other state programs.

7. Describe any non-state revenues that supports the program. Include a description of leveraged funds and the nature of how Oregon qualifies to receive the additional resources (competitive grant, federal matching program, private donation, performance bonuses, etc.). If the program has a dedicated funding stream, describe the dedicated source and the nature of the dedication (constitutional or statutory) providing legal citations to the dedication.

Oregon Tech has been supporting OREC through grants, industry donations and E&G funds since its inception in 2001, and will continue to apply for grants and seek support from industry partners, however this model is not sustainable in the current state funding environment. While OREC has raised over \$11M to support its mission, most of the funds were dedicated to the development of renewable energy resources for

energy, teaching and learning, and only 9% have been committed to applied research collaborations to catalyze economic activity and jobs, while providing relevant experiences for students. A summary of OREC-related investments is listed below.

8. Oregon Tech does not plan to establish or increase fees to pay for OREC services.

## OREGON RENEWABLE ENERGY CENTER- Related Energy Systems and Applied Research Funding Sources

Fiscal Years June 30 2001 - June 30, 2015

Title	Total FY 2001 - 2015
Geothermal Direct-Heat Utilization (Closed)	130,889.86
Geothermal Renewable Energy Assista (Closed)	996,123.81
Geothermal Information Outreach (Closed)	672,420.33
OREC DE-FG03-02ER-63373 (Closed)	485,000.00
GHC DE-FG02-06ER64214 (Closed)Power Plants	480,869.59
GHC DE-FG36-08G088022 (Closed)Power Plants	3,506,400.00
USDA-REAP Rural Energy for America (Closed)	79,663.96
USDA-REAP/Energy Audits Assist (Closed)	7,854.22
DOE/Boise St-Natl Geotherm Database (Closed)	467,840.41
DOE/Univ Nv Reno UNR-11-06 (Closed)	77,538.75
NREL TAA-1-31467-01 (Closed)	49,948.77
NREL TAA-2-31490-01 (Closed)	750,315.57
NREL TOA KLDJ-5-55052-00 (Closed)	241,536.37
DOE/BLA-Geothermal Analysis (Closed)	408,616.57
DOE/NREL Student Competition Rio Gr (Closed)	5,408.62
WSU GeoPowering the West Support (Closed)	15,998.03
ODOE Christmas Valley OTH-B Radar S (Closed)	181,727.62
PSU/OTREC Hybrid Vehicle Testing	133,202.99
NITC Combined Traction	111,077.22
NITC General Adaption of Electric Hybrid Drive	67,710.58
NITC Small Starts Projects	18,138.29
<b>Federal Grants/Subgrants</b>	<b>8,888,281.56</b>
OMD Christmas Valley RenewEnergy (Closed)	169,094.00
GHC-Oregon Dept of Energy (Closed)	40,385.67
UNR Geothermal Academy 13 (Closed)	19,683.00
<b>Oregon/Nevada Grants</b>	<b>229,162.67</b>
City of Glenwood Springs-GeoEval (Closed)	54,036.37
OREC Donations	75,070.26
PacPow BlueSky LowTemp Project (Closed)	100,000.00
GHC Residential Treatment Facility (Closed)	3,000.00
OR BEST Green Lite Hybrid Drive (Closed)	73,284.00
OR BEST - KersTech Comm Prg	69,565.59
Drive Oregon Match - NITC-OIT-03 (Closed)	15,000.00
OR BEST Integrated Battery System	83,999.10
BEST Project Grants	40,874.67
BEST - NW Energy Experience	44,446.48
<b>Other Grants</b>	<b>559,276.47</b>
	327,169.84
<b>All Grants</b>	<b>9,676,720.70</b>

Energy Trust of Oregon \_Geothermal Power Plants

2,037,000.00

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<b>\$11,713,720.70</b>	<b>\$11,713,720.70</b>
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