Call made for better metrics for energy savings

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A Michigan State University professor says if the world is to make better decisions when it comes to developing new energy sources, it needs to have better methods of measuring progress toward its energy goals. Just how well are we doing at developing alternatives to fossil fuels?

Speaking at this year's meeting of the American Association for the Advancement of Science, Bruce Dale said that appropriate metrics are needed in order to gauge our progress toward energy security.

"The problem is, how do we develop metrics that are relatively straight forward, relatively easy to calculate?" said Dale, an MSU professor of chemical engineering and materials science. "If we get bogged down in complexity, we'll spend decades arguing about it while we continue to burn oil, coal and natural gas, and build up greenhouse gases."

One important and useful method of measurement is "energy return on energy invested," or EROI. This measures how much energy is used to actually produce a unit of energy.

"The EROI metric has significant value, but it alone is not enough," Dale said. "We also need to consider differences in energy quality, which EROI doesn't always address. Right now, the critical energy quality that we need is liquid fuel, fuels for the tank."

For example, some biofuels - liquid fuels made from plant products - have a good EROI, somewhere in the 15:1 range. That means for every

15 units of biofuel energy that is produced, one unit is used to produce that 15 units.

"However," said Dale, "if we are to enhance national energy security, we need to go beyond this. We should also consider critical materials that are required to pursue different energy alternatives, such as the availability of lithium for electric vehicles."

Dale's presentation, titled "Thinking Clearly About Energy," was part of a symposium titled "Consequences of Changes in Energy Return on Energy Invested."

Provided by Michigan State University