

# Illinois Energy Efficiency Stakeholder Advisory Group

2020 SAG Portfolio Planning Process  
Proposed Energy Efficiency Ideas Template

## **EE Idea**

Energy Efficient Hydraulic Oil and Gear Oil

## **Submitter Contact Information**

Names: Adam McMurtrey & Sarah Parsons

Organization: ExxonMobil

Website: <https://www.mobil.com/en/lubricants/for-businesses/industrial>

Email: adam.mcmurtrey@exxonmobil.com

Phone: 636-399-8648

## **Energy Efficiency Idea Questions**

Please check the boxes below to identify 1) the type of idea; 2) which Illinois utility or utilities will be impacted by the idea; and 3) which EE sector the idea impacts.

Check	Type of Energy Efficiency Idea
<input checked="" type="checkbox"/>	New Measure or New Program Idea
<input type="checkbox"/>	Proposed Program Approach
<input type="checkbox"/>	Innovative Idea

Check	Illinois Utility Impacted by Energy Efficiency Idea
<input checked="" type="checkbox"/>	Ameren Illinois
<input checked="" type="checkbox"/>	ComEd
<input type="checkbox"/>	Nicor Gas
<input type="checkbox"/>	Peoples Gas & North Shore Gas
<input checked="" type="checkbox"/>	All Illinois Utilities

Check	Energy Efficiency Sector Targeted by Energy Efficiency Idea
<input type="checkbox"/>	Residential Customers – Single Family (non-income qualified/income eligible)
<input type="checkbox"/>	Residential Customers – Multifamily (non-income qualified/income eligible)
<input type="checkbox"/>	Residential Customers – Single Family Income Qualified/Income Eligible
<input type="checkbox"/>	Residential Customers – Multifamily Income Qualified/Income Eligible
<input checked="" type="checkbox"/>	Small Business Customers (commercial & industrial sector)
<input checked="" type="checkbox"/>	Medium/Large Business Customers (commercial & industrial sector)
<input type="checkbox"/>	Other (research & development, emerging technologies, market transformation)

## Additional Questions

1. **Description of Idea:** Describe the proposed idea, including the purpose of the suggested idea and rationale. Describe whether this is an idea that could be implemented in an existing EE program, or whether the idea involves establishing a new measure or program. Please indicate whether additional research may be required before implementation.

The energy efficient industrial lubricant is a proposed new measure that would be implemented through an existing EE program. The measure is based on an existing study within the Wisconsin Focus on Energy Technical Reference Manual and numerous academic and independent engineering studies. This measure was measured and verified in 2017 through the Focus on Energy Emerging Technologies Program. This measure is presented with an algorithm for savings calculation as well as a table of deemed savings values for common applications. This measure is expected to deliver consistently during all climate zones and seasons in Illinois and for equipment located both indoors and outdoors.

There are two applications where up to 6% energy savings have been noted:

1. Gear applications (mixing, gear-drive, gear reducers, drive train, transfer cases, etc).
2. Hydraulic applications (brake press, hydraulic press, molding press, plastics manufacturing, hydraulic pressure systems, excavators, etc).

In addition to manufacturing operations which consume notable quantities of energy, the mobile off-road fluid power market comprises construction, agriculture, material handling, oil and gas, and mining sectors. Combined, these markets consume up to 1.8 quads of energy per year in the United States, corresponding to approximately 6.5% of the total energy consumed in the transportation sector in 2017.<sup>1</sup> There is strong motivation within the hydraulic fluid industry to improve efficiency, productivity, performance, uptime/availability, life cycle costs, maintenance costs, and environment & safety compliance.<sup>1</sup>

Manufacturers who use electric-motor-driven hydraulic systems and electric-motor-driven gear systems can reduce energy consumption by up to 6%<sup>2</sup>.

Some manufacturers of industrial lubricants have committed to providing products and services that help deliver tangible performance and sustainability related benefits — as well as material economic advantages — to manufacturers. As a result, they have developed an extensive range of high-performance lubricants that can help increase equipment operating efficiency. At the same time, these lubricants can help contribute to reduced energy and resource use, lower emissions, and cost savings for industrial equipment.

The energy efficient industrial lubricants must meet the rigorous criteria for energy efficiency. Statistically valid data must be available to substantiate the energy efficiency claim and demonstrate a statistically significant decrease in energy consumption or increase in efficiency when compared with commercially available products designed and intended for the same application.

With so many manufacturers in the state of Illinois, improving energy efficiency of their manufacturing equipment will increase program participation and result in several MWs demand. Additionally, this energy efficient hydraulic oil will reduce costs to operate in addition to life-long costs of the equipment.

2. **Implementation:** How will this idea be delivered to the target market? Describe marketing strategies used to reach the target market and minimize market confusion.

Most commercial energy advisors are already working with small, medium, and large manufacturers. As a result, Ameren, Leidos, GDS, or other field-force options can simply extend and expand the available EE options to these customers. Additionally, lubricant distributors' field force can further expand reach by connecting manufacturers to the relevant program.

3. **Background:** Describe where the idea originated from, including whether this idea has been successfully implemented in other jurisdictions. Provide specific background information that will help utilities and SAG participants understand the proposed idea.

See Overview in section 1

4. **Idea Impact:** Provide additional information on the customer segment that will be targeted with the program idea, including how and why this idea will have a positive impact on customers participating in Illinois EE programs.

See Overview section 1

5. **Duration:** Is this idea intended to be offered for the duration of the 4-year EE Plan or as a pilot measure or program?

The expected measure life is assumed to be 15 years or as long as the equipment life since the energy efficiency is a result of reducing friction in the operating equipment. This can be used for the life of the equipment. Proposal is to include this as a standard measure.

6. **Estimated Budget:** Provide the total estimated budget for each program year (2022 – 2025).

Limited resources required to implement as the opportunity to expand the EE program within manufacturing and construction is simple.

7. **Estimated Participation:** Provide participation totals for each program year (i.e. number of measures installed, number of customer participants, etc.)

2020: 15-20 manufacturing plant participants, providing an estimated 452,550 kW-Hr's saved (~30,170 kW-Hr each per year)

## **Sources**

If any sources will be useful to Illinois utilities in reviewing ideas, please either provide links within this template or send attachment(s) to the SAG Facilitator with the Energy Efficiency Idea submittal.

See Section 1