

Name: TROLIE (Transmission facility Ratings and Operating Limits Information Exchange, pronounced like “trolley”)

Mission statement:

Establish an open conformance standard and cultivate a software ecosystem to accelerate the implementation of reliable, secure, and interoperable systems for the exchange of transmission facility ratings and related information.

Description:

With FERC Order 881, North American Transmission Owners, Transmission Operators, Transmission Providers, and Reliability Coordinators must establish a means to exchange ratings information based on current and forecasted ambient conditions. There is no standards body with a mandate to define a technical specification for that exchange and no vendor consortium that is working toward a specification.

MISO (Midcontinent Independent System Operator, pronounced like “my sew” as in “my sewing needle”) released an OpenAPI specification on GitHub (<https://misoenergy.github.io/TROLIE/>) in the hope of evolving an open specification with its members and neighboring Reliability Coordinators. GE Vernova has since used that as a starting point to define a specification that more adequately addresses the needs of its customers. This latter contribution has not yet been released, since the desire is to release it as part of the launch of a project under the LF Energy umbrella.

Is this a new project/working group/special interest group or an existing one?

This is a new project.

Current lead(s):

Christopher Atkins (MISO)
Tory McKeag (GE Vernova)

Sponsoring organization(s), along with any other key contributing individuals and/or organizations

Both Tory and Christopher’s contributions have the full support of their respective employers, GE Vernova and MISO. Several other individuals employed by other industry players have expressed interest in participating, and the project’s hope is that LF Energy will facilitate that participation.

Detail any existing community infrastructure:

At this point all that exists is a [GitHub repo](#) and an associated [GitHub Pages site](#).

Are there any specific infrastructure needs or requests outside of what is provided normally by LF Energy (please refer to the lifecycle for project benefits)? If so, please detail them.

No, the Sandbox Stage and subsequent stage benefits are sufficient and invaluable to the project's success.

Why would this be a good candidate for inclusion in LF Energy?

Including TROLIE as an LF Energy project should accelerate the implementation of FERC Order 881 in the organizations which support and operate the Bulk Electric System in North America. The order is meant to ensure more efficient utilization of the transmission system.

How would this benefit from inclusion in LF Energy?

Our hope is that LF Energy will help us build community and foster contribution from the community by providing an inclusive, vendor-friendly, well-governed space and straightforward paths to commercial adoption of the project's outputs.

Provide a statement on alignment with the mission in the LE Energy charter.

As a project developing an open standard for the exchange of transmission facility ratings information, the project's mission seems perfectly aligned with the LF Energy charter.

What specific need does this project/working group/special interest group address?

The project's specific aims are:

- Define OpenAPI specification for the exchange of ratings and ratings-related information to support organizations working to comply with FERC Order 881.
- A conformance program that emulates that Zowe Conformance Program or the Certified Kubernetes Conformance Program insofar as they give vendors a means to demonstrate their conformance to the above specification and signal their commitment to maintaining their conformance over time.
- An open commons for the development of clients that implement the OpenAPI specification.

Describe how this project/working group/special interest group impacts the energy industry.

Most organizations involved in the operation of the transmission system in North America now need to exchange ratings and related information in an automated, frequent manner. This project will help accelerate their implementation and simplify interoperability. Many of these organizations are small Transmission Owners that are resource constrained; these may benefit from reduced costs that should be realized with the advent of an interoperability standard. Other organizations that operate in multiple Reliability Coordinator's footprint should see similar benefits.

Describe how this project/working group/special interest group intersects with other LF Energy projects/working groups/special interest groups.

TROLIE is very focused on interoperability in the exchange of ratings and related information between operators of the transmission system in North America. Maintaining this focus is critical to widespread adoption in the implementation window of FERC Order 881. To that end we do not anticipate tangible intersections with other LF Energy projects from a code or architecture perspective. However, some LF Energy projects seem adjacent to the TROLIE project's focus, for example:

- OperatorFabric—real-time reliability coordination now includes at-least-hourly changes to transmission facility ratings, and while TROLIE aims to support the automated exchange of the required information, some circumstances would involve operator interventions that could be facilitated by OperatorFabric.
- GXF—the TROLIE specification could be added as a connector in the future, for example to submit Dynamic Line Ratings
- OpenSTEF—might ingest ratings forecasts from a TROLIE implementation.

Who are the potential benefactors of this project/working group/special interest group?

In North America we expect Transmission Owners, Transmission Operators, Transmission Providers, Reliability Coordinators, ISO/RTOs, and their myriad vendors to benefit from establishing TROLIE as a de facto standard. Moreover, by implementing Order 881 which TROLIE aims to accelerate, FERC anticipates benefit to rate payers and “meet[ing] the needs of the grid of the future.”¹

What other organizations in the world should be interested in this project/working group/special interest group?

Other organizations who may have interest in TROLIE include FERC, NERC, NATF, and NAESB. Some specific vendors include Siemens, Open System International, OATI, EIDSN, GridBright, and PCI Energy Solutions, among others.

Plan for growing in maturity if accepted within LF Energy

We hope to move from Sandbox to Incubation very quickly. We anticipate the first commercial product to implement the TROLIE specification will be delivered in an early-access alpha form in Q1 2024. FERC Order 881 has an implementation deadline of July 2025, so we hope to get lots of vendors involved sooner rather than later.

Project license

The work is currently under the Apache License 2.0, and we anticipate continuing with that license.

¹ <https://ferc.gov/news-events/news/ferc-rule-improve-transmission-line-ratings-will-help-lower-transmission-costs>

Is the project's code available now? If so, provide a link to the code location.

<https://github.com/misoenergy/TROLIE>

Does this project have ongoing public (or private) technical meetings?

Informal, irregular, private meetings between the current leads listed previously are the only technical meetings so far.

Do this project's community venues have a code of conduct? If so, what is it?

No. We have no community venues as such.

Describe the project's leadership team and decision-making process.

The current leads have tried to synthesize the needs of our customers and codify them in the OpenAPI specification. We need to establish a governance model that invites participation from other parties, including other vendors, as part of joining LF Energy.

Does this project have public governance (more than just one organization)?

No.

Does this project have a development schedule and/or release schedule?

No.

Does this project have dependencies on other open source projects? Which ones?

Yes, the OpenAPI Specification.

Describe the project's documentation.

Minimal.

Describe any trademarks associated with the project.

No trademarks have been registered.

Do you have a project roadmap?

No.

Does this project have a legal entity and/or registered trademarks?

No.

Has this project been announced or promoted in any press?

No.

Does this project compete with other open source projects or commercial products?

No, the project specifically does not intend to develop a server implementation of the TROLIE specification that could be used in a commercial offering, and we not aware of any open source projects addressing the same needs as TROLIE.