

# LF Energy Guiding Principles

The following principles are intended to guide the evolution and growth of the technical community and the ecosystem, over time. The living document can be found [here](#).

- **Process:**
  - A group of 10 met four times to workshop ideas about principles and build alignment across members.
  - The following document is a Version 1.0.
  - The following principles received the highest votes from our second session on December 15th, 2020
  - We then iterated as a group over the course of sessions three and four.
  - There are additional principles that can be worked on over time.
  - The Principles effort has been inspired by The TOGAF Standard, Version 9.2 - Architecture Principles ([opengroup.org](http://opengroup.org))
- **Rationale:**
  - We seek to provide a consistent and measurable level of quality to guide decision-making for the LF Energy governance and technical communities.
- **Implications:**
  - Without these principles, exclusions, favoritism, and inconsistency would rapidly undermine the growth and evolution of LF Energy
  - LF Energy initiatives and projects should seek to align with the principles
  - A conflict with a principle will be resolved through discussion and if necessary, changing the framework of the initiative

## North Star Governing Principle

- **Governance:** The Governing Board will hold responsibility to the LF Energy community to ensure that the North Star Governing Principle is regularly reviewed for modifications or updates, and that these are handled in a timely manner.

<b>North Star Governing Principle</b>	This is the LF Energy steering principle
<b>Mission</b>	<b>Support society and the planet</b>
<b>Statement</b>	The LF Energy ecosystem is designed and engineered to support rapid decarbonization that benefits the environment, enables economic prosperity, and leads to social well-being for future generations.
<b>Rationale</b>	<p>To mitigate the worst of climate change, research scientists have concluded that power systems must lead global decarbonization efforts to remove fossil-fuel from our economies. Right behind power system transformation will be passenger vehicles, the built environment, and trucks. Together these interrelated efforts represent 75% of the carbon currently being emitted. Failure is not an option.</p> <p>The goal of LF Energy is to enable this energy and power system transformation in a way that ensures both the health of the world's economy and the health of people, the planet, and the well-being of future generations. Our mission is to provide a 21st century plan of action to respond to decarbonization of power systems, transportation, and buildings through open source, open frameworks, reference architectures, leveraged collaborative development, and a support ecosystem of complementary projects.</p>
<b>Implications</b>	<p>To enable open, global collaboration and cooperation around transforming economies to be carbon neutral, LF Energy recognizes that clean and renewable energy, power systems, and transportation are central to nearly every challenge and opportunity facing humanity. For this reason, LF Energy declares:</p> <ol style="list-style-type: none"> <li>1. Projects and working groups will support and not contradict the <a href="#">Universal Declaration of Human Rights</a>.</li> <li>2. LF Energy projects will seek to ensure access to affordable, reliable, sustainable and modern energy for all people through alignment to the <a href="#">UN Sustainable Development Goals</a>.</li> <li>3. Projects that do not contribute to the UN Sustainable Development Goals or that in some way violate the Universal Declaration of Human Rights will not be adopted into the LF Energy ecosystem.</li> </ol>

## Architecture Principles

- **Governance:** The TAC Chair holds responsibility to the TAC to ensure that the Principles are regularly reviewed and that needs for modifications or updates are handled in a timely manner.
- **Statement:** The following principles are intended to guide the evolution and growth of the technical community within LF Energy

<b>Principle #1</b>	<b>Interoperability by default</b>
<b>Statement</b>	Design and engineer for easy integration

<b>Rationale</b>	The more it is interoperable, the easier it is adopted, the faster the community grows
<b>Implications</b>	<ul style="list-style-type: none"> <li>• Consider interfaces as important as core feature.</li> <li>• Clearly identify components that may be connected to the tool.</li> <li>• Use internationally recognized standards, and where possible well governed, royalty-free and <a href="#">open standards</a> are preferred.</li> <li>• Use open source principles and open source licenses that allow for joint investment, and that include the right to modify and for source code, reference implementations, reference architectures, and other intellectual property to be shareable to ensure for long-term improvement, sustainability, and evolution.</li> </ul>

<b>Principle #2</b>	<b>Resilience by design</b>
<b>Statement</b>	Design and engineer for continuous availability.
<b>Rationale</b>	The energy transition leads to an increased share of renewable energy sources, resulting in more volatile and unpredictable power systems. This requires real-time situational awareness with minimal service interruptions.
<b>Implications</b>	<ul style="list-style-type: none"> <li>• Minimize downtime (including planned maintenance)</li> <li>• Design anti-fragile systems (anticipate failure)</li> <li>• Design for automation</li> <li>• Adopt software practices that enable scalability and resilience</li> </ul>

<b>Principle #3</b>	<b>Simplify by design</b>
<b>Statement</b>	Design and engineer for simplicity.
<b>Rationale</b>	Simple architectures are easier to communicate, build, deploy, operate, and evolve thus requiring lower costs.
<b>Implications</b>	<ul style="list-style-type: none"> <li>• Simple is hard and requires a better understanding of the problem space, available technologies, experience with previous designs to eliminate unneeded complexity and ongoing effort to fight entropy over time.</li> <li>• Avoid over-engineering today to pay off in the future at the same time balance to provide for the easy integration of near term capabilities.</li> <li>• Avoid premature optimization and allow the design to emerge from known implementations.</li> <li>• Focus on code that is directly supporting functionality that provides value that is differentiating for LF Energy.</li> <li>• Strive for the Simplest Option: <ul style="list-style-type: none"> <li>• Of two otherwise equal solutions, the simplest is usually better</li> <li>• Do the simplest thing that could possible work</li> <li>• Everything should be made as simple as possible, but not simpler</li> </ul> </li> </ul>

<b>Principle #4</b>	<b>Security and safety by design</b>
<b>Statement</b>	Design and engineer for security and safety
<b>Rationale</b>	<p>Security and safety must be a top priority from the start and cannot be bolted on afterwards.</p> <p>Security and safety benefits include:</p> <ul style="list-style-type: none"> <li>• It protects your and your customers businesses</li> <li>• It protects personal information</li> <li>• Allows employees and customers to work safely</li> <li>• Inspire confidence in your solutions</li> </ul>
<b>Implications</b>	<ul style="list-style-type: none"> <li>• Security bowtie analysis &amp; CII infrastructure best practice badge as a way of eliciting requirements for safety and reliability concerns.</li> <li>• Security is based on identity and not location (zero-trust)</li> <li>• Security in depth (multiple layers)</li> <li>• Secure defaults; systems may never revert to insecure mode, e.g. in case of failure</li> <li>• Use standards for authentication and authorization including federated identity protocols.</li> <li>• Due diligence in terms of adding 3rd party components.</li> <li>• Enable a full audit trail.</li> </ul>