

## DCFlex Flex MOSAIC™ Framework

The DCFlex Flex MOSAIC™ Framework provides a unified, **technology-neutral structure for describing and evaluating the flexibility capabilities of large loads**, including modern data centers. By establishing a **shared language and transparent performance expectations**, the framework enables utilities, system operators, regulators, and developers to make faster, more consistent, and more confident decisions in designing and planning for flexibility.

### What Problem Is the Flexibility Framework Trying to Solve?

Large loads lack clear signals regarding which flexibility capabilities are most valuable to the grid, and there is inconsistency across regions, making design decisions difficult. Electric utilities and system operators, in turn, face fragmented processes for interpreting flexibility.

Each project is often modeled as a custom case, increasing study time, uncertainty in how flexibility will be delivered, and requiring highly conservative assumptions, even where existing grid headroom could be unlocked with some flexibility.

The result is a system where speed to power suffers and uncertainty prevails. The goal of introducing Flex MOSAIC™ is to **increase transparency and predictability** around flexibility capabilities to operationalize flexibility and facilitate large load interconnection processes.

### How does the Flexibility Framework work?

The framework proposes a set of flexibility capabilities that represent needs that are aligned with most of the high value use cases where flexibility can unlock issues that constrain grid connection.

The framework is built based on 5 core guiding principles:

1. **Non-discrimination:** technology and end-user neutrality.
2. **Transparency:** setting clear flexibility capability requirements and performance expectations.

Class	Description
	<i>Critical Peaking</i> Responds to <i>rare</i> scarcity events of 5 hours or less
	<i>Peaking</i> Responds to <i>frequent</i> scarcity events 5 hours or less
	<i>Prolonged</i> A + B + responds to <i>prolonged</i> events, up to 24+ hrs
	<i>Fast</i> A + B + provide fast response with short notice
	Fully <i>grid responsive</i>

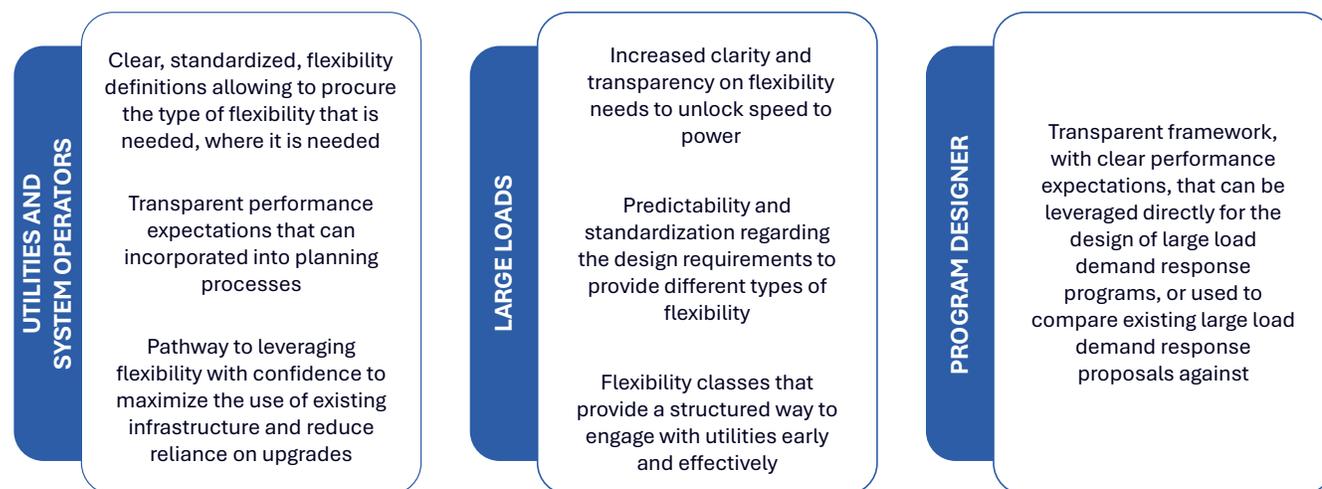
Figure 1: Simplified overview of flexibility framework

3. **Completeness:** containing sufficient information to guide investment and planning.
4. **Standardization:** replicable across time and geography.
5. **Adoptability:** designed to fit into existing processes.

Each flexibility class is aligned with a set of common grid needs requiring changes in net demand, for a given duration, with a given notice period and expected availability. Examples of services may include relief during severe grid congestion, mitigating system demand peaks, prolonged periods of low supply, fast intra-day balancing, or similar.

Large load designs (including business constraints) are assessed against the ability to meet the flexibility capability definitions. The classification can be used to start the discussion between the load customer and the utility or system operator during the grid application process to transparently articulate the capabilities that may be needed or available as part of the connection study process. Systems and other stakeholders may build derivative programs based on the framework (whole or in part) to enable voluntary participation in flexible load programs.

### What is the value of the Flexibility Framework to different users?



### Unlocking Grid Capacity

The framework’s ultimate value emerges when the flexibility it defines can be systematically incorporated into planning models, operational practices, and investment decisions. EPRI is developing tools and approaches to integrate the standardized flexibility classes into the analytical approaches needed to realize flexibility’s value in grid planning.