

# URPX: Utility Rate Plan Exchange Standard

November 19<sup>th</sup>, 2025


Presented to: Inaugural Working Group Participants

Project Lead: Klaar De Schepper, Flux Tailor

Key Partnership: NREL

Proposal: <https://github.com/lf-energy/tac/issues/600>

Klaar De Schepper, Flux Tailor LLC

The logo graphic for Flux Tailor features a series of overlapping, colorful lines in shades of blue, green, yellow, and red. These lines form a series of peaks and valleys, resembling a stylized mountain range or a network diagram. The lines are thin and numerous, creating a sense of depth and complexity.

**FLUX**  
tailor

“Adoption scales at the speed of trust. To create trust we need transparency.”

- Stephen M. R. Covey

# URPX Mission

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**Promote market competition, affordability, transparency, and innovation in the energy sector by introducing an open standard for the exchange and publication of machine-readable utility rate plan data from distribution, retail, and other utility service providers.**

# Agenda

	What	Topics	Who	Time (US ET)
1	Welcome and Intros	Quick Hellos	Klaartje DS	10:00 — 10:05
2	URPX Overview	Goals and Timeline, github repo review	Klaartje DS	10:05 — 10:45
3	Ontology	Design approach, edge case research	Klaartje DS, Danny ZS	
4	SHACL Rules	Approach and status	Klaartje DS, Una SS	
5	API	Design approach, volunteers	All	
6	Documentation	Documentation scope and status, volunteers	All	
7	Test Data	Scope and maintenance, volunteers	All	10:45 — 10:50
8	Other Business & Next Steps	<ul style="list-style-type: none"><li>Volunteers for co-chair, secretary/task manager</li><li>Meeting Frequency: Biweekly starting mid January?</li></ul>	All	10:50 – 11:00

# URPX Project Overview

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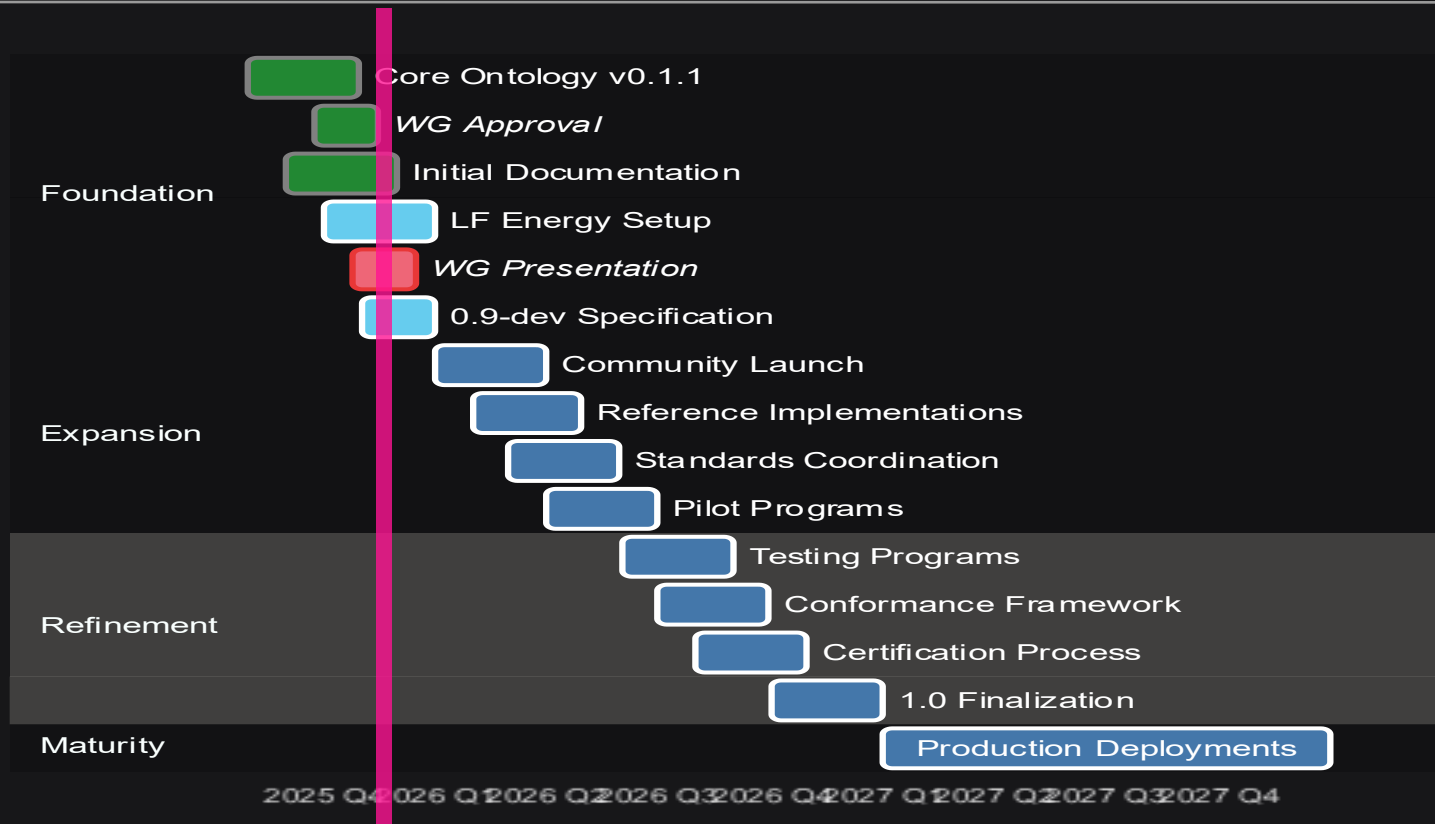
## What is URPX?

- Comprehensive, standardized method for representing utility rate plan data
- Machine-accessible format for transparent energy pricing
- Built on semantic web technologies (RDF, OWL, SHACL)
- Apache 2.0 for source code, W3 license for standard

## Key Partnerships:

- **Flux Tailor** - Primary sponsor and technical lead
- **National Renewable Energy Laboratory (NREL)** - Formal MOU for open standard development
- **Technology Companies** - Existing LF Energy supporters expressing interest
- **Community Engagement** - Active responses on GitHub proposal

# Proposed Timeline



# The Problem: Fragmented Rate Plan Data Landscape

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Core Challenge: Lack of standardized access to machine-accessible utility rate plan data creates barriers to innovation, competition, and transparency in energy markets.

## Vendor Silos

- Each vendor uses incompatible, proprietary systems for cost calculations
- No standard format for rate plan logic and customer profile attributes
- Prevents economies of scale across utility territories

## Missing Data

- Rate plan data in machine-accessible form not made available by utilities
- Lack of greenhouse gas and emissions data integration
- Missing renewable energy credit (REC) data for accounting

# The Problem: Fragmented Rate Plan Data Landscape

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## Integration Challenges

- Data quality assurance struggles across territories
- Customers unable to estimate impact of profile changes
- Difficult to assess cost impacts across scenarios

## Customer Experience

- Customers cannot easily understand available rate plans
- Complex rate structures and retail supply rate plans are not easily comparable
- Customers often must call utilities to understand rate plan options

## Impact

- Slows adoption of clean energy technologies
- Limits customer choice
- Creates inefficiencies across the energy ecosystem



# Community Interest

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**GitHub Proposal Responses** - Active community interest on LF Energy TAC Issue #600

- Organizations expressing interest in rate plan standardization
- Developers noting need for consistent rate plan APIs
- Recognition of data integration pain points

**DER Task Force Slack Channel** - Engagement with distributed energy resource community

- Rate plan data is critical for DER integration
- Time-of-use pricing and Highly Dynamic Pricing needed for optimization
- Customer engagement and demand response applications

# URPX Overview

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## **Rich Semantic Model with Standards Alignment**

### **Modular Ontology in RDF**

- **Core Rate Plan Ontology**
- **Charge Classification**
- **Geography**
- **Organization**

### **SHACL constraints for data quality**

**Data instances in JSON-LD made available through GraphQL or REST API**

# LF Energy Integration Strategy

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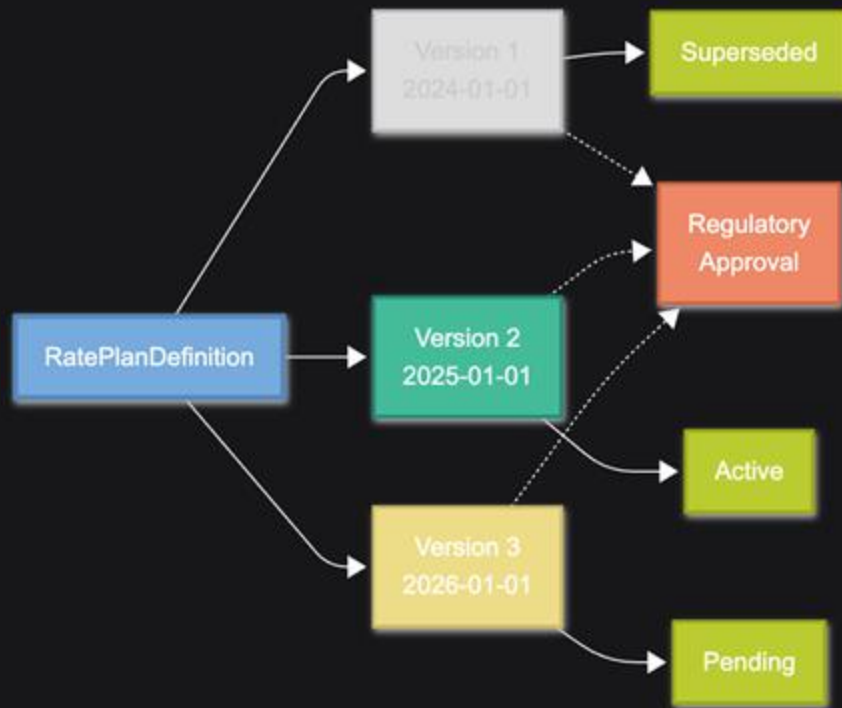
## **Customer Data Specification (CDS) Integration:**

- Service account references without PII exposure
- Billing cycle synchronization for temporal alignment
- Service agreement integration for contract-based authorization
- Geographic territory mapping for consistent applicability

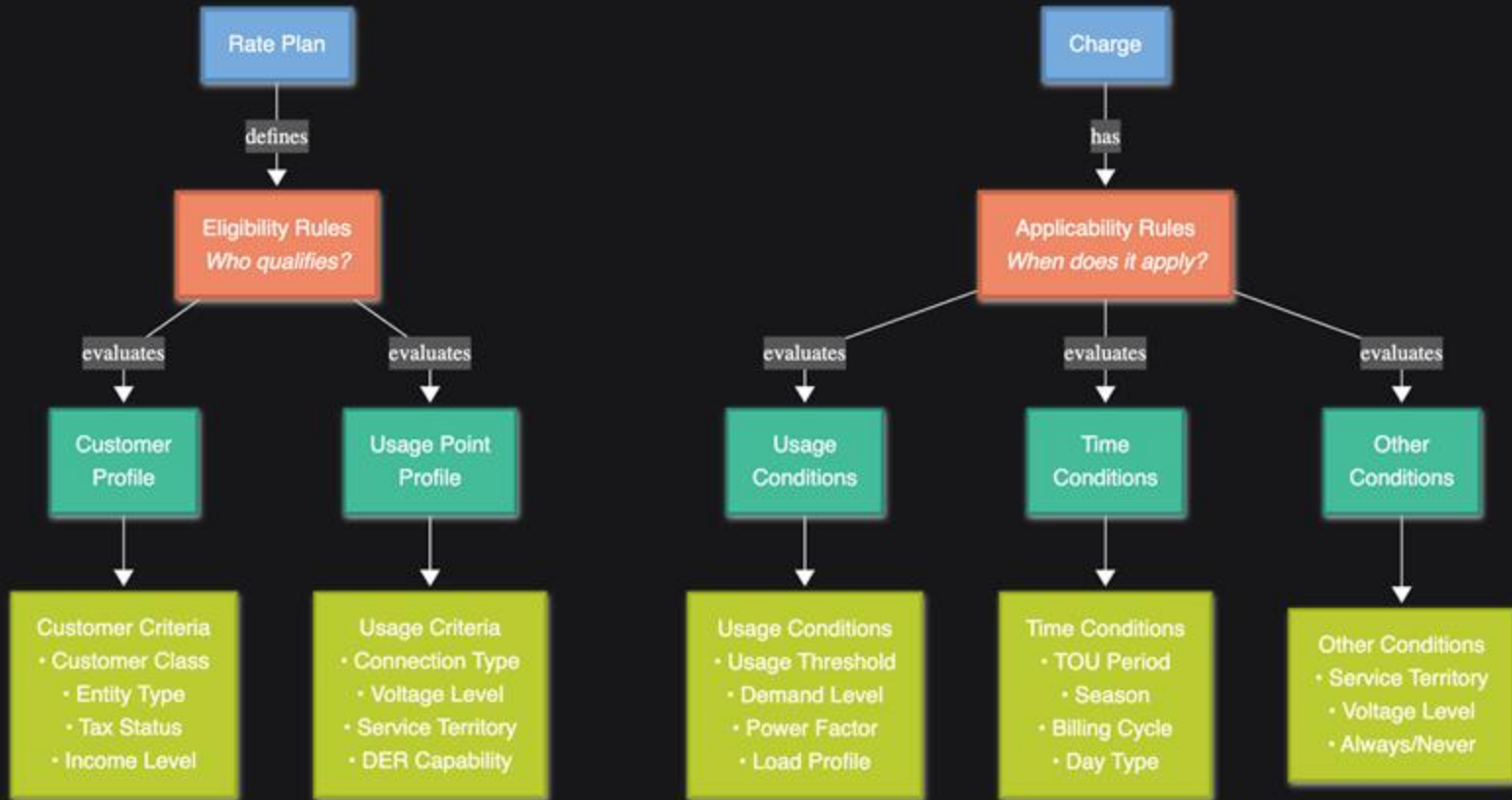
## **Green Button Connect My Data Integration:**

- TOU schedule to usage segment mapping
- Interval data alignment for accurate billing calculations
- Summary measurement integration for bill validation
- Real-time usage data for dynamic rate plan optimization

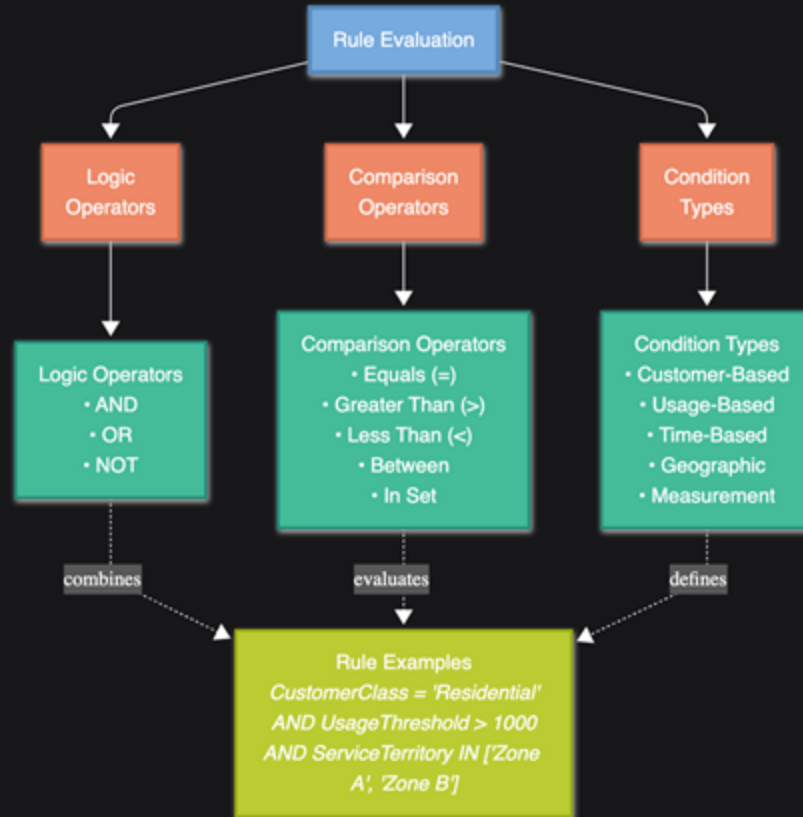
# Temporal Versioning



# Eligibility & Applicability



# Eligibility & Applicability



# Next Steps: Volunteers?