

URPX: Utility Rate Plan Exchange Standard

November 19th, 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



FLUX
tailor

The logo features the word "FLUX" in a large, bold, white sans-serif font. Below it, the word "tailor" is written in a smaller, lowercase, white sans-serif font. The background is a dark gray gradient. Overlaid on the background are numerous thin, colored lines (ranging from blue to red) that converge towards the bottom right corner, creating a sense of depth and perspective.

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

- Stephen M. R. Covey

URPX Mission

**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">• Volunteers for co-chair, secretary/task manager• Meeting Frequency: Biweekly starting mid January?	All	10:50 – 11:00

URPX Project Overview

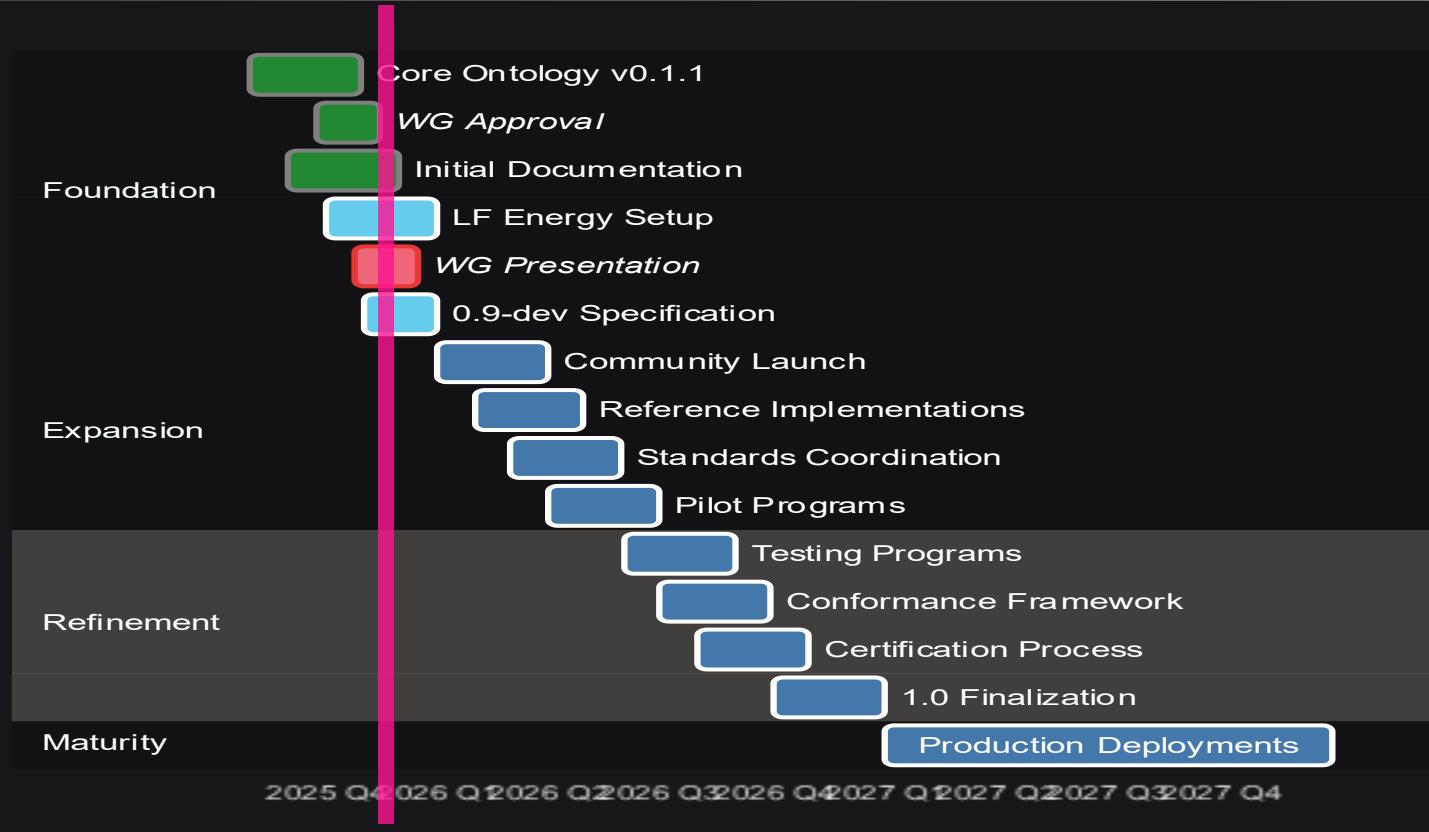
What is URPX?

- 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

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

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

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

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

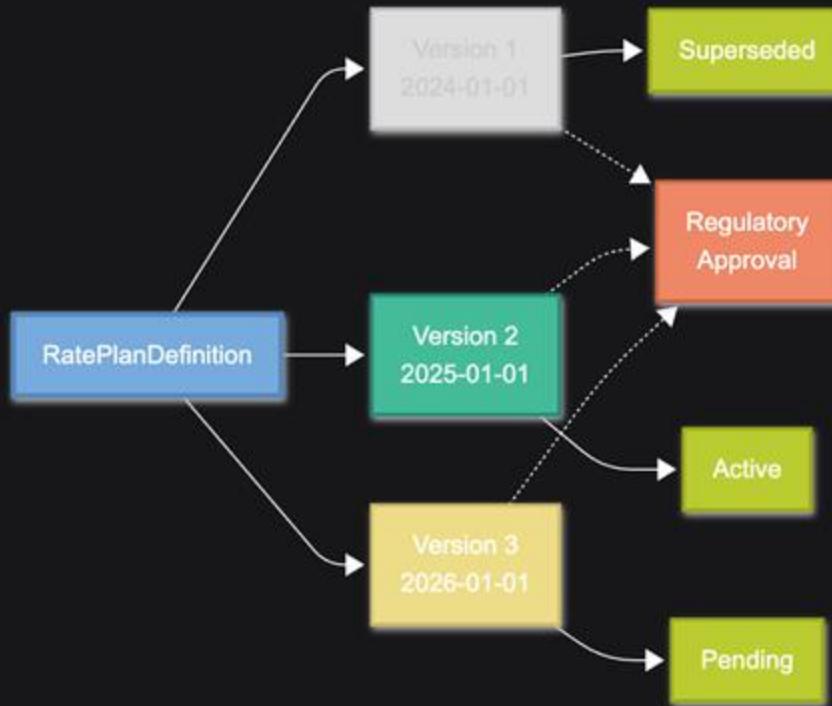
Customer Data Specification (CDS) Integration:

- 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

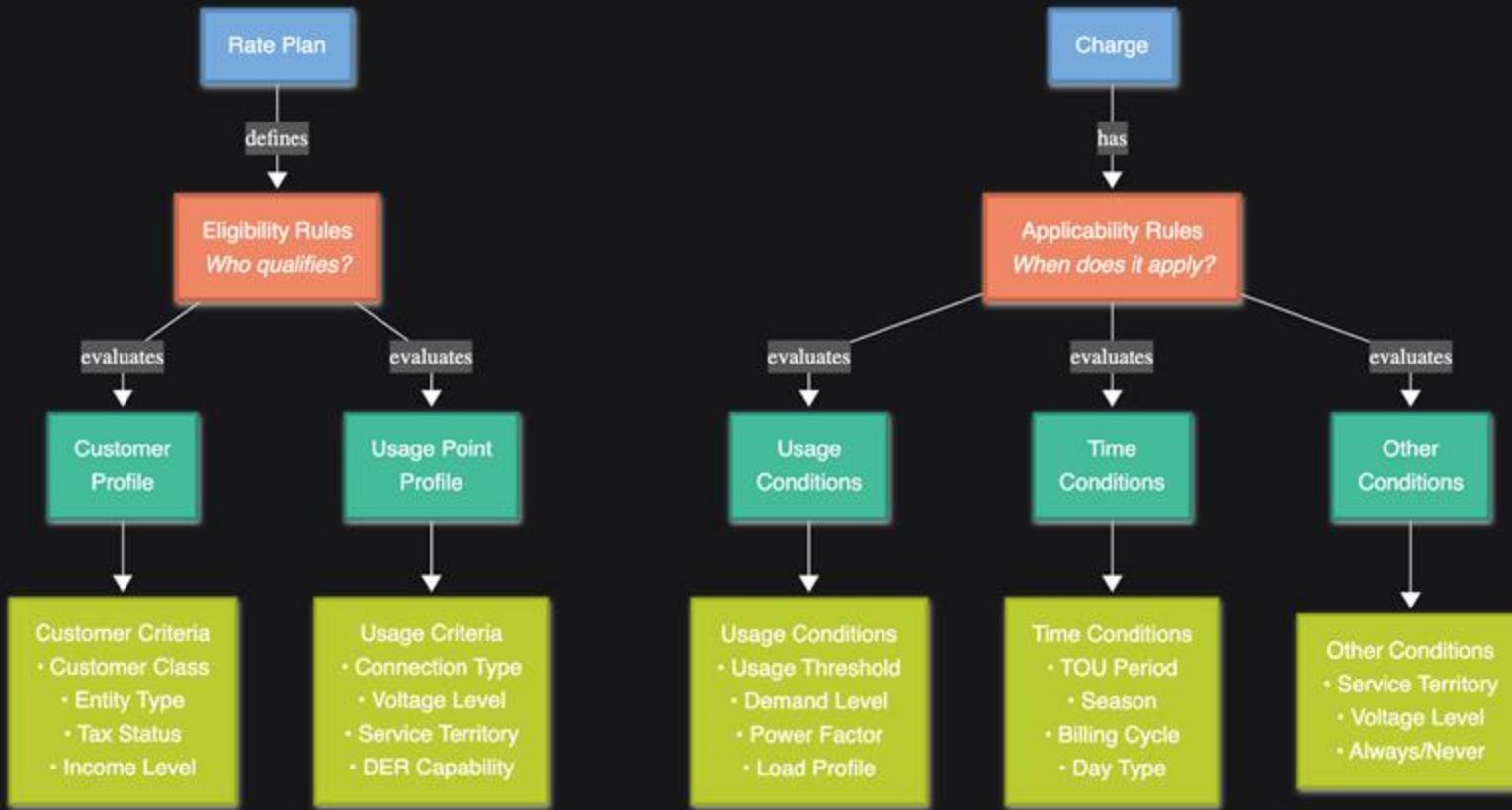
Green Button Connect My Data Integration:

- 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

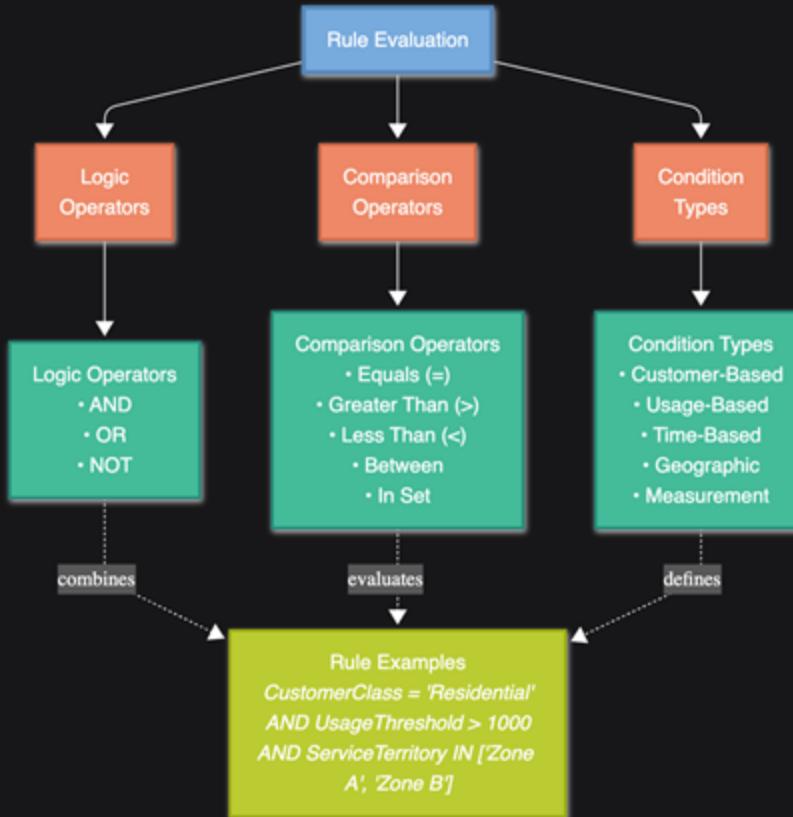
Temporal Versioning



Eligibility & Applicability



Eligibility & Applicability



Next Steps: Volunteers?