

Formula 1

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Formula 2

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Detailed Explanation

The guide bridges the semantic and structural gap between granular DER device models and enterprise-scale grid applications by extending the CIM ontology with new packages—primarily the 'DERAggregation' and 'DERConsumption' profiles defined under IEC 61968-13 and IEC 61970-301 Annex D. It specifies how individual DER assets are logically grouped into 'DERGroups' with shared control interfaces, hierarchical relationships (e.g., DERAggregate ? DERGroup ? DERUnit), and time-synchronized operational parameters (active/reactive power limits, ramp rates, availability status). Crucially, it prescribes mapping rules for translating proprietary or vendor-specific DER data (e.g., Modbus registers, IEEE 2030.5 SEP2 endpoints) into CIM-compliant classes such as DERControl, DERAvailability, and DERCapability, ensuring fidelity during information exchange across EMS, ADMS, and DERMS platforms. The guide also addresses conformance requirements—including mandatory vs. optional attributes, cardinality constraints, and profile versioning—and provides XML Schema Definition (XSD) and Web Ontology Language (OWL) artifacts to support automated validation and semantic reasoning. Its adoption enables utilities and aggregators to implement standardized interfaces for real-time telemetry ingestion, automated setpoint dispatch, and regulatory compliance reporting without custom point-to-point integrations.

Key Components

#	Component
1	DERAggregation Profile (IEC 61968-13)

#	Component
2	CIM Extension Packages (e.g., DERConsumption, DERControl)
3	UML-to-RDF Mapping Rules

Applications

#	Application
1	Interoperable DER dispatch integration with ISO/RTO markets
2	Standardized data exchange between DERMS and ADMS/EMS
3	Automated regulatory reporting for FERC Order 2222 and EU Clean Energy Package

Related Concepts

#	Concept
1	Common Information Model (CIM)
2	IEEE 2030.5 Smart Energy Profile
3	FERC Order 2222
4	OpenADR 2.0b
5	IEC 61850-7-420

Tags

smart_grid, interoperability, DER_management, CIM, IEC_standards