

## Building Energy Data Exchange Specification (BEDES) Compliant Mapping

<b>Date</b>	9/27/2017
<b>Implementation</b>	Green Button
<b>Implementation Version</b>	0.7.20160225
<b>BEDES Version</b>	V2.1

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For more information about BEDES, please visit

<https://bedes.lbl.gov/bedes-online>

Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
ApplicationInformation	[extension] Contains information about a Third Party Application requesting access to the DataCustodian services. Information requested may include items such as Organization Name, Website, Contact Info, Application Name, Description, Icon, Type, default Notification and Callback endpoints, and may also include agreement with terms of service.  Atom Links: self link to this resource								
dataCustodianId	Contains the identifier for the Data Custodian. (e.g. 'Sandbox Data Custodian')	String64			Account Identifier	Identifier Label="Account"  Identifier=[value]			
dataCustodianApplicationStatus	A code indicating the current status of the application. This value is provided by Data Custodian, cannot be modified by Third Party. (e.g. '2' => production)	DataCustodianApplicationStatus	1 - Review 2 - Production (Live) 3 - On Hold 4 - Revoked		Customer Account Status	Contact Label="Customer"  Account Status="Under review" Account Status="Reviewed and approved" Account Status="On hold" Account Status="Canceled"			
thirdPartyApplicationDescription	A description of the application. (e.g. 'Third Party Application Description is added as provided by each TP')	String256			Vendor Description	Identifier Label="Vendor"  Description=[value]			
thirdPartyApplicationStatus	A code indicating the current status of the application. (e.g. '1' => Development)	ThirdPartyApplicationStatus	1 - Development 2 - ReviewTest 3 - Production 4 - Retired		NO MAPPING				
thirdPartyApplicationType	A code indicating the type of the application. (e.g. '1' => Web)	ThirdPartyApplicationType	1 - Web 2 - Desktop 3 - Mobile 4 - Device		NO MAPPING				
thirdPartyApplicationUse	A code indicating the expected use of the application. (e.g. '1' => EnergyManagement)	ThirdPartyApplicationUse	1 - EnergyManagement 2 - Comparisons 3 - Government 4 - Academic 5 - LawEnforcement		NO MAPPING				
thirdPartyPhone	The phone number of the organization to which access will be granted. (For debugging - not to be shared with customers). (e.g. '+1 800 673-6377')	String32			Vendor Telephone Number	Identifier Label="Vendor"  Telephone Number=[value]			
authorizationServerUri	Contains the base URI link to the authorization server. (e.g. 'https://services.greenbuttondata.org/DataCustodian')	xs:anyURI			NO MAPPING				
thirdPartyNotifyUri	URI used to notify ThirdParty that subscribed information is available. (e.g. 'https://services.greenbuttondata.org/ThirdParty/espi/1_1/Notification')	xs:anyURI			NO MAPPING				
authorizationServerAuthorizationEndpoint	An OAuth 2.0 URI used by the client to obtain authorization from the resource owner via user-agent redirection - {AuthorizationServer}{AuthorizationPath}. (e.g. 'https://services.greenbuttondata.org/DataCustodian/oauth/authorize')	xs:anyURI			NO MAPPING				
authorizationServerRegistrationEndpoint	A URI used by the client to register a Third Party with a Data Custodian via its {AuthorizationServer}{RegistrationPath}. (e.g. 'https://services.greenbuttondata.org/DataCustodian/espi/1_1/register')	xs:anyURI			NO MAPPING				

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authorizationServerTokenEndpoint	An OAuth 2.0 URL used by the client to exchange an authorization grant for an access token, typically with client authentication. (e.g. 'https://services.greenbuttondata.org/DataCustodian/oauth/token')	xs:anyURI			NO MAPPING				
dataCustodianBulkRequestURI	{DataCustodianBulkRequestURI} URI of DataCustodian's Bulk Request endpoint. The value is provided by the Data Custodian and cannot be modified by the ThirdParty. (e.g. 'https://services.greenbuttondata.org/DataCustodian/espi/1_1/resource/Batch/Bulk/{BulkID}' => bulkID from BR={bulkid} from Scope)	xs:anyURI			NO MAPPING				
dataCustodianResourceEndpoint	{ResourceServer}{ResourcePath}. (e.g. 'https://services.greenbuttondata.org/DataCustodian/espi/1_1/resource')	xs:anyURI			NO MAPPING				
thirdPartyScopeSelectionScreenURI	URI of the Scope Selection Screen used by the Retail Customer to select the characteristics of the Green Button data to be shared with the ThirdParty. (e.g. 'https://services.greenbuttondata.org/ThirdParty/espi/1_1/RetailCustomer/ScopeSelection')	xs:anyURI			NO MAPPING				
thirdPartyUserPortalScreenURI	URI of a Third Party's web page for use with Green Button Connect My Data (e.g. 'https://services.greenbuttondata.org/ThirdParty/espi/1_1/home')	xs:anyURI			NO MAPPING				
client_secret	A secret to be associated with this application, used to sign OAuth requests. This value is provided by Data Custodian (OAuth client_secret). (e.g. 'secret')	String512			NO MAPPING				
logo_uri	The link to the logo image for the application. Size greater than 180 x 150 may be cropped or reduced (OAuth logo_uri). (e.g. 'http://services.greenbuttondata.org/ThirdParty/favicon.png')	xs:anyURI			NO MAPPING				
client_name	The name of the application to which access will be granted (OAuth client_name). (e.g. 'Green Button ThirdParty')	String256			Vendor Contact Name	Identifier Label="Vendor"			
						Contact Name=[value]			
client_uri	The link to the main page of the application (OAuth client_uri). (e.g. 'https://services.greenbuttondata.org/ThirdParty')	xs:anyURI			NO MAPPING				
redirect_uri	The default redirect back to the application after authorization grant (OAuth redirect uri). (e.g. 'https://services.greenbuttondata.org/ThirdParty/espi/1_1/OAuthCallback')	xs:anyURI			NO MAPPING				
client_id	Contains the identifier for the Third Party (OAuth client_id). (e.g. 'ThirdParty Name')	String64			Vendor Identifier	Identifier Label="Vendor"			Not sure Vendor is the correct label, but don't see a better option.
						identifier=[value]			
tos_uri	A URI that points to a human-readable Terms of Service document for the Third Party Application. The Terms of Service usually describes a contractual relationship between the Retail Customer and the Third Party Application that the Retail Customer accepts when authorizing access to the Third Party Application. (e.g. 'http://services.greenbuttondata.org/ThirdParty/TermsOfService')	xs:anyURI			NO MAPPING				
policy_uri	A URI that points to a human-readable Policy document for the Third Party Application. The policy usually describes how a Retail Customer's energy usage information will be used by the Third Party Application. (e.g. 'http://services.greenbuttondata.org/ThirdParty/UsagePolicy')	xs:anyURI			NO MAPPING				
software_id	An identifier for the software that comprises the Third Party Application. The software_id is asserted by the Third Party software and is intended to be shared between all copies of the Third Party software. The value of this field MAY be a UUID [RFC4122]. (e.g. 'MyCoolGreenButtonAnalyzer')	String256			NO MAPPING				

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software_version	A version identifier for the software that comprises a Third Party Application. The value of this field is a string that is intended to be compared using string equality matching. The value of the software_version SHOULD change on any update to the Third Party software. (e.g. 'Version 1.00.00')	String32			NO MAPPING				
client_id_issued_at	Time date stamp at which this client_id was issued. Note the schema data type is TimeType and the presentation in OAuth message flow is xs:dateTime and requires a conversion when accessed. (e.g. '1403190000' => 2014-06-19T15:00:00Z)	TimeType			NO MAPPING				
client_secret_expires_at	Date time at which this client_secret expires -- value of 0 means the client_secret never expires. (e.g. '0' => never expires)	TimeType			NO MAPPING				
contacts	Array of email addresses for people responsible for the Authorized Third Party Application. These MAY be made available to Retail Customers for support requests for the Authorized Third Party application. The Data Custodian Authorization Server MAY use the email addresses as identifiers for an Authorized Third Party application administrative page. (e.g. 'support@energyos.org')	String256			Vendor Email Address	Identifier Label="Vendor"			
token_endpoint_auth_method	The authentication method used by the OAuth 2.0 Token Endpoint to authenticate the Third Party Application. (e.g. 'client_secret_basic')	TokenEndPointMethod	client_secret_basic		NO MAPPING	Email Address={value}			
scope	Space separated list of scope values the Third Party Application may use when requesting access Tokens. (e.g. 'FB=1_3_4_5_8_13_18_19_31_34_35_39;IntervalDuration=900_3600;BlockDuration=Daily;HistoryLength=34128000;SubscriptionFrequency=Daily;AccountCollection=5;BR=1;')	String256			NO MAPPING				
grant_types	Grant types this interface supports. (e.g. 'client_credentials, authorization_code, refresh_token' in separate tags)	GrantType	authorization_code client_credentials refresh_token		NO MAPPING				
response_types	Response types supported. (e.g. 'code')	ResponseType	code token		NO MAPPING				
registration_client_uri	(ClientConfigurationURI) A URI used by a registered client to manage registration information. This URI is returned by the AuthorizationServer in the registration_client_uri field of the client information response. {AuthorizationServerRegistrationEndpoint}/ApplicationInformation/(ApplicationInformationID). (e.g. 'https://services.greenbuttondata.org/DataCustodian/esp/1_1/resource/ApplicationInformation/(ApplicationInformationID)/')	xs:anyURI			NO MAPPING				
registration_access_token	A credential obtained during Third Party registration with the Data Custodian to enable access to the ApplicationInformation resource. This is persisted in the ApplicationInformation resource structure. (e.g. 'fe82518d-e325-404e-978c-c02f9339bccc')				NO MAPPING				
dataCustodianScopeSelectionScreenURI	The URI used by the Third Party to redirect the Retail Customer to the Data Custodian Scope Selection Screen (note that this will likely involve a dialog with the Retail Customer including a log in authentication process). (e.g. http://localhost:8080/DataCustodian/RetailCustomer/ScopeSelection)				NO MAPPING				

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Authorization	<p>[extension] Represents a permission granted by an owner for access to a resource.</p> <p>Atom Links:  self link to this resource  rel corresponding ApplicationInformation (if this is the client access containing token instance)  rel corresponding to the authorized resource (if this is the access_token containing instance for a customer resource)</p> <p>Note: for privacy there is no identifier of the RetailCustomer in this structure but an implementation will have consider how to maintain a correspondence between a RetailCustomer and his authorization.</p>								
authorizedPeriod	Restricts access to requests or subscriptions within this date time interval. (e.g. 'duration=31536000,start=1333252800')	DateTimeInterval			NO MAPPING				
publishedPeriod	Restricts access to the objects within the associated resource that were published within this date time interval. (e.g. 'duration=31536000' for most recent 365 days)	DateTimeInterval			NO MAPPING				
status	The status of this authorization. (e.g. '1' => active)	AuthorizationStatus			NO MAPPING				
			0 - Revoked						
			1 - Active						
			2 - Denied						
expires_at	Expiration period for the accessToken. (e.g. '1403190000' for 2014-06-19T15:00:00Z)	TimeType			NO MAPPING				
grant_type	Type of grant being negotiated for. (e.g. 'authorization_code')	GrantType			NO MAPPING				
			authorization_code						
			client_credentials						
			refresh_token						
scope	Negotiated scope of the authorization. (e.g. 'FB=1_3_4_5_13_14_15_1937_39;IntervalDuration=3600;BlockDuration=monthly;HistoryLength=94608000')	String256			NO MAPPING				
token_type	Type of token used. (e.g. 'Bearer')	TokenType			NO MAPPING				
			Bearer						
error	Contains last error returned to ThirdParty. (e.g. 'server_error')	OAuthError			NO MAPPING				
			invalid_request						
			invalid_client						
			invalid_grant						
			unauthorized_client						
			unsupported_grant_type						
			invalid_scope						
			invalid_redirect_uri						
			invalid_client_metadata						
			invalid_client_id						
			access_denied						
			unsupported_response_type						
			server_error						
			temporarily_unavailable						
error_description	Contains free text string describing last error returned to ThirdParty. (e.g. 'No Service')	String256			NO MAPPING				
error_uri	Specific error URI for last returned error. (e.g. 'na' if not supported)	xs:anyURI			NO MAPPING				
resourceURI	resourceURI that represents the data set authorized. Can be used in a GET of the resource subscription. (e.g. 'http://localhost:8080/DataCustodian/esp/1_1/resource/Batch/Subscription/1')	xs:anyURI			NO MAPPING				
authorizationURI	URI that can be used to update or delete this Authorization. (e.g. 'http://localhost:8080/DataCustodian/esp/1_1/resource/Authorization/1')	xs:anyURI			NO MAPPING				
customerResourceURI	URI that can be used to retrieve customer account information. Note will have different namespace than resourceURI	xs:anyURI			Customer URL	Contact Label="Customer"			
						Contact URL=[value]			

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IntervalBlock	Time sequence of Readings of the same ReadingType.								
interval.duration	Specifies the time period during which the contained readings were taken. Duration of the interval, in seconds.	Int		s	Interval Duration	Interval Duration=[value]	s		
interval.start	Specifies the time period during which the contained readings were taken.Date and time that this interval started	Time Stamp			Interval Start Date	Interval Start Date=[value]			
IntervalReading	Specific value measured by a meter or other asset. Each Reading is associated with a specific ReadingType.								
cost	[correction] Specifies a cost associated with this reading, in hundred-thousandths of the currency specified in the ReadingType for this reading. (e.g., 840 = USD, US dollar)	Int48			Resource Cost	Resource Cost=[value]	\$		
timePeriod.duration	The date time and duration of a reading. If not specified, readings for each interval Length in ReadingType are present. Duration of the interval, in seconds.	Int		s	Interval Duration	Interval Duration=[value]	s		
timePeriod.start	The date time and duration of a reading. If not specified, readings for each interval Length in ReadingType are present. Date and time that this interval started	Time Stamp			Interval Start Date	Interval Start Date=[value]			
value	[correction] Value in units specified by ReadingType	Int48			Resource Value	Resource Value=[value]	Dependent on Resource type		
consumptionTier	[extension] Code for consumption tier associated with reading.	Int16			Tier ID	Tier ID=[value]			BEDES Tier ID is a constrained list, not Int16 code
tou	[extension] Code for the TOU type of reading.	Int16			Time Of Use Rate Structure ID	Rate Structure="Time of use rate" Rate Structure ID=[value]			BEDES Rate Structure ID is a string not Int16
cpp	[extension] Critical peak period (CPP) bucket the reading value is attributed to. Value 0 means not applicable. Even though CPP is usually considered a specialized form of time of use 'tou', this attribute is defined explicitly for flexibility.	Int16			NO MAPPING				
MeterReading	Set of values obtained from the meter.								
ReadingQuality	Quality of a specific reading value or interval reading value. Note that more than one Quality may be applicable to a given Reading. Typically not used unless problems or unusual conditions occur (i.e., quality for each Reading is assumed to be 'Good' (valid) unless stated otherwise in associated ReadingQuality).								
quality	Quality, to be specified if different than ReadingType.defaultQuality. The specific format is specified per the standard is defined in QualityOfReading.	QualityOfReading			Quality or Derivation Method or Collection Process or Normalization				BEDES constrained list values do not match all GreenButton values as noted below
			0 - valid		Valid	Quality="Valid"			
			7 - manually edited		Manually edited	Quality="Manually edited"			
			8 - estimated using reference day		Reference day estimate	Derivation Method="Reference day estimate"			
			9 - estimated using linear interpolation		Linear interpolation	Derivation Method="Linear interpolation"			
			10 - questionable		Questionable	Quality="Questionable"			
			11 - derived		Derived	Collection Process="Derived"			
			12 - projected (forecast)		Projected	Quality="Projected"			
			13 - mixed		Mixed	Quality="Mixed"			
			14 - raw		Raw	Quality="Raw"			
			15 - normalized for weather		Weather normalized	Normalization="Weather normalized"			
			16 - other		Other	Quality="Other"			
			17 - validated		Validated	Quality="Validated"			
			18 - verified		Verified	Quality="Verified"			
			19 - revenue-quality		NO MAPPING				
ReadingType	Characteristics associated with all Readings included in a MeterReading.								
accumulationBehaviour	Code indicating how value is accumulated over time for Readings of ReadingType.	AccumulationKind			NO MAPPING				
			0 - none						
			1 - bulkQuantity						
			2 - continuousCumulative						
			3 - cumulative						
			4 - deltaData						
			6 - indicating						
			9 - summation						
			10 - timeDelay						
			12 - instantaneous						
			13 - latchingQuantity						
			14 - boundedQuantity						

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commodity	Code for commodity classification of Readings of ReadingType.	CommodityKind			Resource or Emission Gas Type				BEDES constrained list values do not match all GreenButton values as noted below
			0 - none		None	Resource="None"			
			1 - electricity SecondaryMetered		Electricity Secondary	Resource="Electricity" Priority="Secondary"			
			2 - electricity PrimaryMetered		Electricity Primary	Resource="Electricity" Priority="Primary"			
			3 - communication		NO MAPPING				
			4 - air		NO MAPPING				
			5 - insulativeGas		NO MAPPING				
			6 - insulativeOil		NO MAPPING				
			7 - naturalGas		Natural Gas	Resource="Natural Gas"			
			8 - propane		Propane	Resource="Propane"			
			9 - potableWater		Potable water	Resource="Potable water"			
			10 - steam		Distric steam	Resource="Distric steam"			
			11 - wasteWater		Wastewater	Resource="Wastewater"			
			12 - heatingFluid		NO MAPPING				
			13 - coolingFluid		NO MAPPING				
			14 - nonpotableWater		Alternative water	Resource="Alternative water"			
			15 - nox		Nox	Emission Gas Type="Nox"			
			16 - so2		SO2	Emission Gas Type="SO2"			
			17 - ch4		CH4	Emission Gas Type="CH4"			
			18 - co2		CO2	Emission Gas Type="CO2"			
			19 - carbon		NO MAPPING				
			20 - hch		NO MAPPING				
			21 - pfc		NO MAPPING				
			22 - sf6		NO MAPPING				
			23 - tvLicence		NO MAPPING				
			24 - internet		NO MAPPING				
			25 - refuse		NO MAPPING				
consumptionTier	Code for consumption tier associated with a Reading of ReadingType.	Int16			Tier ID	Tier ID={value}			BEDES Tier ID is a constrained list, not Int16 code
currency	Code for the currency for costs associated with this ReadingType. The valid values per the standard are defined in CurrencyCode.	Currency			NO MAPPING				BEDES only uses USD
			840 - USD						
			978 - EUR						
			36 - AUD						
			124 - CAD						
			756 - CHF						
			156 - CNY						
			208 - DKK						
			826 - GBP						
			392 - JPY						
			578 - NOK						
			643 - RUB						
			752 - SEK						
			356 - INR						
			0 - other						
dataQualifier	Code describing a salient attribute of Readings of ReadingType.	DataQualifierKind			Interval Measure				BEDES constrained list values do not match all GreenButton values as noted below
			0 - none		None	Interval Measure="None"			
			2 - average		Average	Interval Measure="Average"			
			4 - excess		NO MAPPING				
			5 - highThreshold		NO MAPPING				
			7 - lowThreshold		NO MAPPING				
			8 - maximum		Maximum	Interval Measure="Maximum"			
			9 - minimum		Minimum	Interval Measure="Minimum"			
			11 - nominal		NO MAPPING				
			12 - normal		NO MAPPING				
			16 - secondMaximum		NO MAPPING				
			17 - secondMinimum		NO MAPPING				
			23 - thirdMaximum		NO MAPPING				
			24 - fourthMaximum		NO MAPPING				
			25 - fifthMaximum		NO MAPPING				
			26 - sum		Total	Interval Measure="Total"			

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defaultQuality	Default value to be used if no value of ReadingQuality.quality is provided. Specific format and valid values per the standard are specified in QualityOfReading.	QualityOfReading	0 - valid 7 - manually edited 8 - estimated using reference day 9 - estimated using linear interpolation 10 - questionable 11 - derived 12 - projected (forecast) 13 - mixed 14 - raw 15 - normalized for weather 16 - other 17 - validated 18 - verified 19 - revenue-quality		Default Quality or Derivation Method or Normalization Valid Manually edited Reference day estimate Linear interpolation Questionable Derived Projected Mixed Raw Weather normalized Other Validated Verified NO MAPPING	Collection Process="Default" Quality = [value] Quality="Valid" Quality="Manually edited" Derivation Method="Reference day estimate" Derivation Method="Linear interpolation" Quality="Questionable" Collection Process="Derived" Quality="Projected" Quality="Mixed" Quality="Raw" Normalization="Weather normalized" Quality="Other" Quality="Validated" Quality="Verified"			BEDES constrained list values do not match all GreenButton values as noted below Some additional values fall under other qualifiers like Collection Process and Normalization.
flowDirection	Direction associated with current related Readings.	FlowDirectionKind	0 - none 1 - forward 2 - lagging 3 - leading 4 - net 5 - q1plusQ2 7 - q1plusQ3 8 - q1plusQ4 9 - q1minusQ4 10 - q2plusQ3 11 - q2plusQ4 12 - q2minusQ3 13 - q3plusQ4 14 - q3minusQ2 15 - quadrant1 16 - quadrant2 17 - quadrant3 18 - quadrant4 19 - reverse 20 - total 21 - totalByPhase		Current Flow Direction None Forward NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING Reverse NO MAPPING NO MAPPING	Current Flow Direction="None" Current Flow Direction="Forward" Current Flow Direction="Reverse"			BEDES constrained list values do not match all GreenButton values as noted below
intervalLength	Default interval length specified in seconds for Readings of ReadingType.	UInt32			Interval Duration		Dependent on Qualifier		
kind	Code for general classification of a Reading of ReadingType.	MeasurementKind	0 - none 2 - apparentPowerFactor 3 - currency 4 - current 5 - currentAngle 6 - currentImbalance 7 - date 8 - demand 9 - distance 10 - distortionVoltAmperes 11 - energization 12 - energy 13 - energizationLoadSide 14 - fan		Power Metric None NO MAPPING NO MAPPING Current Current angle NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING NO MAPPING	Power Metric="None" Power Metric="Current" Power Metric="Current angle"			BEDES constrained list values do not match all GreenButton values as noted below Also, not all GB "kinds" are power



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			15 - frequency		Frequency	Power Metric="Frequency"			
			16 - Funds		NO MAPPING				
			17 - ieee1366ASAI		NO MAPPING				
			18 - ieee1366ASIDI		NO MAPPING				
			19 - ieee1366ASIFI		NO MAPPING				
			20 - ieee1366CAIDI		NO MAPPING				
			21 - ieee1366CAIFI		NO MAPPING				
			22 - ieee1366CEMIn		NO MAPPING				
			23 - ieee1366CEMSMin		NO MAPPING				
			24 - ieee1366CTAIDI		NO MAPPING				
			25 - ieee1366MAIFI		NO MAPPING				
			26 - ieee1366MAIFie		NO MAPPING				
			27 - ieee1366SAIDI		NO MAPPING				
			28 - ieee1366SAIFI		NO MAPPING				
			31 - lineLosses		NO MAPPING				
			32 - losses		NO MAPPING				
			33 - negativeSequence		NO MAPPING				
			34 - phasorPowerFactor		NO MAPPING				
					NO MAPPING				
			35 - phasorReactivePower						
			36 - positiveSequence		NO MAPPING				
			37 - power		Power	Power Metric="Power"			
			38 - powerFactor		Power factor	Power Metric="Power factor"			
			40 - quantityPower		NO MAPPING				
			41 - sag		NO MAPPING				
			42 - swell		NO MAPPING				
			43 - switchPosition		NO MAPPING				
			44 - tapPosition		NO MAPPING				
			45 - tariffRate		NO MAPPING				
			46 - temperature		NO MAPPING				
			47 -		NO MAPPING				
			totalHarmonicDistortion						
			48 - transformerLosses		NO MAPPING				
			49 -		NO MAPPING				
			unipedeVoltageDip10to15						
			50 -		NO MAPPING				
			unipedeVoltageDip15to30						
			51 -		NO MAPPING				
			unipedeVoltageDip30to60						
			52 -		NO MAPPING				
			unipedeVoltageDip60to90						
			53 -		NO MAPPING				
			unipedeVoltageDip90to100						
			54 - voltage		Voltage	Power Metric="Voltage"			
			55 - voltageAngle		Voltage angle	Power Metric="Voltage angle"			
			56 - voltageExcursion		NO MAPPING				
					Supply voltage imbalance	Power Metric="Supply voltage imbalance"			
			57 - voltageImbalance						
			58 - volume		NO MAPPING				
			59 - zeroFlowDuration		NO MAPPING				
			60 - zeroSequence		NO MAPPING				
					Distortion power factor	Power Metric="Distortion power factor"			
			64 - distortionPowerFactor						
			81 - frequencyExcursion		NO MAPPING				
			90 - applicationContext		NO MAPPING				
			91 - apTitle		NO MAPPING				
			92 - assetNumber		NO MAPPING				
			93 - bandwidth		NO MAPPING				
			94 - batteryVoltage		NO MAPPING				
			95 - broadcastAddress		NO MAPPING				
			96 - deviceAddressType1		NO MAPPING				
			97 - deviceAddressType2		NO MAPPING				
			98 - deviceAddressType3		NO MAPPING				
			99 - deviceAddressType4		NO MAPPING				
			100 - deviceClass		NO MAPPING				
			101 -		NO MAPPING				
			electronicSerialNumber						

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			102 - endDeviceID		NO MAPPING				
			103 - groupAddressType1		NO MAPPING				
			104 - groupAddressType2		NO MAPPING				
			105 - groupAddressType3		NO MAPPING				
			106 - groupAddressType4		NO MAPPING				
			107 - ipAddress		NO MAPPING				
			108 - macAddress		NO MAPPING				
			109 - mfgAssignedConfigurationID		NO MAPPING				
			110 - mfgAssignedPhysicalSerial Number		NO MAPPING				
			111 - mfgAssignedProductNumber		NO MAPPING				
			112 - mfgAssignedUniqueCommunicationAddress		NO MAPPING				
			113 - multiCastAddress		NO MAPPING				
			114 - oneWayAddress		NO MAPPING				
			115 - signalStrength		NO MAPPING				
			116 - twoWayAddress		NO MAPPING				
			117 - signaltoNoiseRatio		NO MAPPING				
			118 - alarm		NO MAPPING				
			119 - batteryCarryover		NO MAPPING				
			120 - dataOverflowAlarm		NO MAPPING				
			121 - demandLimit		NO MAPPING				
			122 - demandReset		NO MAPPING				
			123 - diagnostic		NO MAPPING				
			124 - emergencyLimit		NO MAPPING				
			125 - encoderTamper		NO MAPPING				
			126 - ieee1366MomentaryInterruption		NO MAPPING				
			127 - ieee1366MomentaryInterruptionEvent		NO MAPPING				
			128 - ieee1366SustainedInterruption		NO MAPPING				
			129 - interruptionBehaviour		NO MAPPING				
			130 - inversionTamper		NO MAPPING				
			131 - loadInterrupt		NO MAPPING				
			132 - loadShed		NO MAPPING				
			133 - maintenance		NO MAPPING				
			134 - physicalTamper		NO MAPPING				
			135 - powerLossTamper		NO MAPPING				
			136 - powerOutage		NO MAPPING				
			137 - powerQuality		NO MAPPING				
			138 - powerRestoration		NO MAPPING				
			139 - programmed		NO MAPPING				
			140 - pushbutton		NO MAPPING				
			141 - relayActivation		NO MAPPING				
			142 - relayCycle		NO MAPPING				
			143 - removalTamper		NO MAPPING				
			144 - reprogrammingTamper		NO MAPPING				
			145 - reverseRotationTamper		NO MAPPING				
			146 - switchArmed		NO MAPPING				
			147 - switchDisabled		NO MAPPING				
			148 - tamper		NO MAPPING				
			149 - watchdogTimeout		NO MAPPING				
			150 - billLastPeriod		NO MAPPING				
			151 - billToDate		NO MAPPING				
			152 - billCarryover		NO MAPPING				

Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
			153 - connectionFee		NO MAPPING				
			154 - audibleVolume		NO MAPPING				
			155 - volumetricFlow		Volumetric flow	Power Metric="Volumetric flow"			
phase	Code for phase information associated with Readings of ReadingType.	PhaseCodeKind			Phase				BEDES constrained list values do not match all GreenButton values as noted below
			225 - ABCN		NO MAPPING				
			224 - ABC		Phase ABC	Phase="Phase ABC"			
			193 - ABN		NO MAPPING				
			41 - ACN		NO MAPPING				
			97 - BCN		NO MAPPING				
			132 - AB		Phase AB	Phase="Phase AB"			
			96 - AC		NO MAPPING				
			66 - BC		Phase BC	Phase="Phase BC"			
			129 - AN		Phase AN	Phase="Phase AN"			
			65 - BN		Phase BN	Phase="Phase BN"			
			33 - CN		Phase CN	Phase="Phase CN"			
			128 - A		Phase A	Phase="Phase A"			
			64 - B		Phase B	Phase="Phase B"			
			32 - C		Phase C	Phase="Phase C"			
			16 - N		NO MAPPING				
			272 - S2N		Phase S2N	Phase="Phase S2N"			
			784 - S12N						GreenButton Bug, 784 is the same as 769
			528 - S1N		Phase S1N	Phase="Phase S1N"			
			256 - S2		Phase S2	Phase="Phase S2"			
			768 - S12		Phase S1S2	Phase="Phase S1S2"			
			769 - S12N		Phase S1S2N	Phase="Phase S1S2N"			
			0 - none		None	Phase="None"			
			136 - AtoAv		NO MAPPING				
			72 - BAv		NO MAPPING				
			40 - CAv		Phase CA	Phase="Phase CA"			
			17 - NG		NO MAPPING				
			512 - S1		Phase S1	Phase="Phase S1"			
powerOfTenMultiplier	Code for the power of ten multiplier which, when used in combination with the uom, specifies the actual unit of measure for Readings of ReadingType.	UnitMultiplierKind			NO MAPPING				
			-12 - p						
			-9 - n						
			-6 - micro						
			-3 - m						
			-2 - c						
			-1 - d						
			3 - k						
			6 - M						
			9 - G						
			12 - T						
			0 - none						
			1 - da						
			2 - h						
timeAttribute	Code used to specify a particular type of time interval method for Readings of ReadingType.	TimePeriodOfInterest			Interval Frequency				
			0 - none		None	Interval Frequency="None"			
			8 - billingPeriod		NO MAPPING				
			11 - daily		Day	Interval Frequency="Day"			
			13 - monthly		Month	Interval Frequency="Month"			
			22 - seasonal		NO MAPPING				
			24 - weekly		Week	Interval Frequency="Week"			
			32 - specifiedPeriod		NO MAPPING				
tou	Code for the TOU type of Readings of ReadingType.	Int16			Time Of Use Rate Structure ID	Rate Structure="Time of use rate" Rate Structure ID={value}			BEDES Rate Structure ID is a string not Int16
uom	Code for the base unit of measure for Readings of ReadingType. Used in combination with the powerOfTenMultiplier to specify the actual unit of measure	UnitSymbolKind			Unit Of Measure				BEDES constrained list values do not match all GreenButton values as noted below
			61 - VA		NO MAPPING				
			38 - W		W	Unit of Measure="W"			
			63 - VAr		NO MAPPING				

Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
			71 - VAh		NO MAPPING				
			72 - Wh		Wh	Unit of Measure="Wh"			
			73 - VArh		NO MAPPING				
			29 - V		V	Unit of Measure="V"			
			30 - ohm		NO MAPPING				
			5 - A		A	Unit of Measure="A"			
			25 - F		NO MAPPING				
			28 - H		NO MAPPING				
			23 - degC		C	Unit of Measure="C"			
			27 - sec		s	Unit of Measure="s"			
			159 - min		min	Unit of Measure="min"			
			160 - h		hour	Unit of Measure="hour"			
			9 - deg		degree	Unit of Measure="degree"			
			10 - rad		NO MAPPING				
			31 - J		NO MAPPING				
			32 - n		NO MAPPING				
			53 - siemens		NO MAPPING				
			0 - none		Not applicable	Unit of Measure="None"			
			33 - Hz		Hz	Unit of Measure="Hz"			
			3 - g		NO MAPPING				
			39 - pa		Pa	Unit of Measure="Pa"			
			2 - m		NO MAPPING				
			41 - m2		NO MAPPING				
			42 - m3		NO MAPPING				
			69 - A2		NO MAPPING				
			105 - A2h		NO MAPPING				
			70 - A2s		NO MAPPING				
			106 - Ah		NO MAPPING				
			152 - APerA		NO MAPPING				
			103 - APerM		NO MAPPING				
			68 - As		NO MAPPING				
			79 - b		NO MAPPING				
			113 - bm		NO MAPPING				
			22 - bq		NO MAPPING				
			132 - btu		Btu	Unit of Measure="Btu"			
			133 - btuPerH		Btu/hr	Unit of Measure="Btu/hr"			
			8 - cd		NO MAPPING				
			76 - char		NO MAPPING				
			75 - HzPerSec		NO MAPPING				
			114 - code		NO MAPPING				
			65 - cosTheta		NO MAPPING				
			111 - count		NO MAPPING				
			119 - ft3		ft3	Unit of Measure="ft3"			
			120 - ft3compensated		NO MAPPING				
					NO MAPPING				
			123 - ft3compensatedPerH						
			78 - gM2		NO MAPPING				
			144 - gPerG		NO MAPPING				
			21 - gy		NO MAPPING				
			150 - HzPerHz		NO MAPPING				
			77 - charPerSec		NO MAPPING				
			130 - imperialGal		NO MAPPING				
			131 - imperialGalPerH		NO MAPPING				
			51 - jPerK		NO MAPPING				
			165 - jPerKg		NO MAPPING				
			6 - K		NO MAPPING				
			158 - kat		NO MAPPING				
			47 - kgM		NO MAPPING				
			48 - kgPerM3		NO MAPPING				
			134 - litre		NO MAPPING				
			157 - litreCompensated		NO MAPPING				
			138 - litreCompensatedPerH		NO MAPPING				
			137 - litrePerH		NO MAPPING				
			143 - litrePerLitre		NO MAPPING				
			82 - litrePerSec		NO MAPPING				
			156 - litreUncompensated		NO MAPPING				

Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
			139 - litreUncompensatedPerH		NO MAPPING				
			35 - lm		NO MAPPING				
			34 - lx			Unit of Measure="lux"			
			49 - m2PerSec		NO MAPPING				
			167 - m3compensated		NO MAPPING				
			126 - m3compensatedPerH		NO MAPPING				
			125 - m3PerH		NO MAPPING				
			45 - m3PerSec		NO MAPPING				
			166 - m3uncompensated		NO MAPPING				
			127 - m3uncompensatedPerH		NO MAPPING				
			118 - meCode		NO MAPPING				
			7 - mol		NO MAPPING				
			147 - molPerKg		NO MAPPING				
			145 - molPerM3		NO MAPPING				
			146 - molPerMol		NO MAPPING				
			80 - money		NO MAPPING				
			148 - mPerM		NO MAPPING				
			46 - mPerM3		NO MAPPING				
			43 - mPerSec		NO MAPPING				
			44 - mPerSec2		NO MAPPING				
			102 - ohmM		NO MAPPING				
			155 - paA		NO MAPPING				
			140 - paG		NO MAPPING				
			141 - psiA		NO MAPPING				
			142 - psiG		NO MAPPING				
			100 - q		NO MAPPING				
			161 - q45		NO MAPPING				
			163 - q45h		NO MAPPING				
			162 - q60		NO MAPPING				
			164 - q60h		NO MAPPING				
			101 - qh		NO MAPPING				
			54 - radPerSec		NO MAPPING				
			154 - rev		NO MAPPING				
			4 - revPerSec		NO MAPPING				
			149 - secPerSec		NO MAPPING				
			11 - sr		NO MAPPING				
			109 - status		NO MAPPING				
			24 - sv		NO MAPPING				
			37 - t		NO MAPPING				
			169 - therm		Therm	Unit of Measure="Therm"			
			108 - timeStamp		NO MAPPING				
			128 - usGal		gallons	Unit of Measure="gallons"			
			129 - usGalPerH		NO MAPPING				
			67 - V2		NO MAPPING				
			104 - V2h		NO MAPPING				
			117 - VAhPerRev		NO MAPPING				
			116 - VArhPerRev		NO MAPPING				
			74 - VPerHz		NO MAPPING				
			151 - VPerV		NO MAPPING				
			66 - Vs		NO MAPPING				
			36 - wb		NO MAPPING				
			107 - WhPerM3		NO MAPPING				
			115 - WhPerRev		NO MAPPING				
			50 - wPerMK		NO MAPPING				
			81 - WPerSec		NO MAPPING				
			153 - WPerVA		NO MAPPING				
			168 - WPerW		NO MAPPING				
cpp	[extension] Critical peak period (CPP) bucket the reading value is attributed to. Value 0 means not applicable. Even though CPP is usually considered a specialized form of time of use 'tou', this attribute is defined explicitly for flexibility.	Int16			NO MAPPING				

Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
measuringPeriod	[extension] Time attribute inherent or fundamental to the reading value (as opposed to 'macroPeriod' that supplies an 'adjective' to describe aspects of a time period with regard to the measurement). It refers to the way the value was originally measured and not to the frequency at which it is reported or presented. For example, an hourly interval of consumption data would have value 'hourly' as an attribute. However in the case of an hourly sampled voltage value, the meterReadings schema would carry the 'hourly' interval size information. It is common for meters to report demand in a form that is measured over the course of a portion of an hour, while enterprise applications however commonly assume the demand (in kW or kVAR) normalized to 1 hour. The system that receives readings directly from the meter therefore must perform this transformation before publishing readings for use by the other enterprise systems. The scalar used is chosen based on the block size (not any sub-interval size).	TimeAttributeKind			Interval Frequency	Interval Frequency=[value]			BEDES constrained list values do not match all GreenButton values as noted below
			0 - none		None				
			1 - tenMinute		10 minute				
			2 - fifteenMinute		15 minute				
			3 - oneMinute		1 minute				
			4 - twentyfourHour		Day				
			5 - thirtyMinute		30 minute				
			6 - fiveMinute		NO MAPPING				
			7 - sixtyMinute		Hour				
			10 - twoMinute		NO MAPPING				
			14 - threeMinute		NO MAPPING				
			15 - present		NO MAPPING				
			16 - previous		NO MAPPING				
			31 - twentyMinute		NO MAPPING				
			50 - fixedBlock60Min		NO MAPPING				
			51 - fixedBlock30Min		NO MAPPING				
			52 - fixedBlock20Min		NO MAPPING				
			53 - fixedBlock15Min		NO MAPPING				
			54 - fixedBlock10Min		NO MAPPING				
			55 - fixedBlock5Min		NO MAPPING				
			56 - fixedBlock1Min		NO MAPPING				
			57 - rollingBlock60MinIntvl30MinSubIntvl		NO MAPPING				
			58 - rollingBlock60MinIntvl20MinSubIntvl		NO MAPPING				
			59 - rollingBlock60MinIntvl15MinSubIntvl		NO MAPPING				
			60 - rollingBlock60MinIntvl12MinSubIntvl		NO MAPPING				
			61 - rollingBlock60MinIntvl10MinSubIntvl		NO MAPPING				
			62 - rollingBlock60MinIntvl6MinSubIntvl		NO MAPPING				
			63 - rollingBlock60MinIntvl5MinSubIntvl		NO MAPPING				
			64 - rollingBlock60MinIntvl4MinSubIntvl		NO MAPPING				
			65 - rollingBlock30MinIntvl15MinSubIntvl		NO MAPPING				
			66 - rollingBlock30MinIntvl10MinSubIntvl		NO MAPPING				

Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
			67 - rollingBlock30MinIntvl6MinSubIntvl		NO MAPPING				
			68 - rollingBlock30MinIntvl5MinSubIntvl		NO MAPPING				
			69 - rollingBlock30MinIntvl3MinSubIntvl		NO MAPPING				
			70 - rollingBlock30MinIntvl2MinSubIntvl		NO MAPPING				
			71 - rollingBlock15MinIntvl5MinSubIntvl		NO MAPPING				
			72 - rollingBlock15MinIntvl3MinSubIntvl		NO MAPPING				
			73 - rollingBlock15MinIntvl1MinSubIntvl		NO MAPPING				
			74 - rollingBlock10MinIntvl5MinSubIntvl		NO MAPPING				
			75 - rollingBlock10MinIntvl2MinSubIntvl		NO MAPPING				
			76 - rollingBlock10MinIntvl1MinSubIntvl		NO MAPPING				
			77 - rollingBlock5MinIntvl1MinSubIntvl		NO MAPPING				
argument	[extension] Argument used to introduce numbers into the unit of measure description where they are needed (e.g., 4 where the measure needs an argument such as CEMI(n=4)). Most arguments used in practice however will be integers (i.e., 'denominator'=1). Value 0 in 'numerator' and 'denominator' means not applicable.	RationalNumber			NO MAPPING				
IdentifiedObject	This is a root class to provide common naming attributes for all classes needing naming attributes								
BatchItemInfo	Includes elements that make it possible to include multiple transactions in a single (batch) request.								
name	An identifier for this object that is only unique within the containing collection.	HexBinary16			NO MAPPING				
operation	Specifies the operation requested of this item.	CRUDOperation			NO MAPPING				
			0 - Create						
			1 - Read						
			2 - Update						
			3 - Delete						
statusCode	Indicates the status code of the associated transaction.	StatusCode			NO MAPPING				
			200 - Ok						
			201 - Created						
			204 - No Content						
			301 - Moved Permanently						
			302 - Redirect						
			304 - Not Modified						
			400 - Bad Request						
			401 - Unauthorized						
			403 - Forbidden						
			404 - Not Found						
			405 - Method Not Allowed						
			410 - Gone						
			500 - Internal Server Error						
statusReason	Indicates the reason for the indicated status code.	String256			NO MAPPING				

Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
UsagePoint	Logical point on a network at which consumption or production is either physically measured (e.g., metered) or estimated (e.g., unmetered street lights).								
roleFlags	Specifies the roles that this usage point has been assigned. Bit 1 - isMirror Bit 2 - isPremisesAggregationPoint Bit 3 - isPEV Bit 4 - isDER Bit 5 - isRevenueQuality Bit 6 - isDC Bit 7-16 - Reserved	HexBinary16			NO MAPPING				
status	Specifies the current status of this usage point. Valid values include: 0 = off 1 = on	UInt8			NO MAPPING				
amiBillingReady	[extension] Tracks the lifecycle of the metering installation at a usage point with respect to readiness for billing via advanced metering infrastructure reads.	AmiBillingReadyKind			NO MAPPING				
	Usage point is equipped with an AMI capable meter that is not yet currently equipped with a communications module.		amiCapable						
	Usage point is equipped with an AMI capable meter; however, the AMI functionality has been disabled or is not being used.		amiDisabled						
	Usage point is equipped with an operating AMI capable meter and accuracy has been certified for billing purposes.		billingApproved						
	Usage point is equipped with an AMI capable meter having communications capability		enabled						
	Usage point is equipped with a non AMI capable meter.		nonAmi						
	Usage point is not currently equipped with a meter.		nonMetered						
	Usage point is equipped with an AMI capable meter that is functioning and communicating with the AMI network.		operable						
checkBilling	[extension] True if as a result of an inspection or otherwise, there is a reason to suspect that a previous billing may have been performed with erroneous data. Value should be reset once this potential discrepancy has been resolved	boolean			NO MAPPING				
connectionState	[extension] State of the usage point with respect to connection to the network. </xs:documentation	UsagePointConnectedKind			NO MAPPING				
	The usage point is connected to the network and able to receive or send the applicable commodity (electricity, gas, water, etc.).		connected						
	The usage point has been disconnected through operation of a disconnect function within the meter present at the usage point. The usage point is unable to receive or send the applicable commodity (electricity, gas, water, etc.) A logical disconnect can often be achieved without utilising a field crew		logicallyDisconnected						
	The usage point has been disconnected from the network at a point upstream of the meter. The usage point is unable to receive or send the applicable commodity (electricity, gas, water, etc.). A physical disconnect is often achieved by utilising a field crew.		physicallyDisconnected						
estimatedLoad	[extension] Estimated load.	SummaryMeasurement			Estimated Connected Load Capacity	Derivation Method="Estimated"			
						Capacity Qualifier="Connected load"			
						Capacity=[value]			
grounded	[extension] True if grounded.	boolean			NO MAPPING				
isSdp	[extension] If true, this usage point is a service delivery point, i.e., a usage point where the ownership of the service changes hands.	boolean			NO MAPPING				
isVirtual	[extension] If true, this usage point is virtual, i.e., no physical location exists in the network where a meter could be located to collect the meter readings. For example, one may define a virtual usage point to serve as an aggregation of usage for all of a company's premises distributed widely across the distribution territory. Otherwise, the usage point is physical, i.e., there is a logical point in the network where a meter could be located to collect meter readings	boolean			NO MAPPING				
minimalUsageExpected	[extension] If true, minimal or zero usage is expected at this usage point for situations such as premises vacancy, logical or physical disconnect. It is used for readings validation and estimation.	boolean			NO MAPPING				
nominalServiceVoltage	[extension] Nominal service voltage.	SummaryMeasurement			Nominal Voltage Capacity	Capacity Qualifier="Nominal voltage"			
						Capacity=[value]			



Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
outageRegion	[extension] Outage region in which this usage point is located.	String256			NO MAPPING				
phaseCode	[extension] Phase code. Number of wires and specific nominal phases can be deduced from enumeration literal values. For example, ABCN is three-phase, four-wire, s12n (splitSecondary12N) is single-phase, three-wire, and s1n and s2n are single-phase, two-wire.	PhaseCodeKind			Phase	Phase=[value]			BEDES: Phase may not match Greenbutton list options
ratedCurrent	[extension] Current flow that this usage point is configured to deliver.	SummaryMeasurement			Current Power Metric Value	Power Metric="Current"			
ratedPower	[extension] Active power that this usage point is configured to deliver.	SummaryMeasurement			Rated Power Consumption Rate	Power Metric Value=[value] Consumption Rate Type="Rated power"			
						Consumption Rate=[value]			
readCycle	[extension] Cycle day on which the meter for this usage point will normally be read. Usually correlated with the billing cycle.	String256			NO MAPPING				
readRoute	[extension] Identifier of the route to which this usage point is assigned for purposes of meter reading. Typically used to configure hand held meter reading systems prior to collection of reads.	String256			NO MAPPING				
serviceDeliveryRemark	[extension] Remarks about this usage point, for example the reason for it being rated with a non-nominal priority.	String256			NO MAPPING				
servicePriority	[extension] Priority of service for this usage point. Note that usage points at the same service location can have different priorities.	String32			NO MAPPING				
pNode	[extension] A single electrical system Node or subset of Nodes where a physical injection or withdrawal of electricity is modeled and for which a Locational Marginal Price is calculated by the RTO/ISO and used for financial settlements.	String256			NO MAPPING				
aggregateNodes	[extension] A sequence of references to AggregateNodes. An aggregated node can define a typed grouping further defined by the AnodeType enumeration. Types range from System Zone/Regions to Market Energy Regions to Aggregated Loads and Aggregated Generators	AggregateNodes			NO MAPPING				
anodeType	Type of aggregated node	AnodeType			NO MAPPING				
	System Zone/Region		SYS						
	RUC Zone		RUC						
	Load Forecast Zone		LFZ						
	Market Energy/Ancillary Service Region		REG						
	Aggregate Generation Resource		AGR						
	Point of Delivery		POD						
	Aggregate Load Resource		ALR						
	Load TransmissionAccessCharge (TAC) Group		LTAC						
	Adjacent Control Area		ACA						
	Aggregated System Resource		ASR						
	Embedded Control Area		ECA						
aggregateNodeRef	reference for this aggregate node	String256			NO MAPPING				
ElectricPowerQualitySummary	A summary of power quality events. This information represents a summary of power quality information typically required by customer facility energy management systems. It is not intended to satisfy the detailed requirements of power quality monitoring. All values are as defined by measurementProtocol during the period. The standards typically also give ranges of allowed values; the information attributes are the raw measurements, not the determination by the various standards. See referenced standards for definition, measurement protocol and period.								
flickerPst	A measurement of long term Rapid Voltage Change in hundredths of a Volt. flickerPst is derived from 2 hours of Pst values (12 values combined in cubic relationship).	Int48			Power line flicker long term pst Power Metric Value	Power Metric="Power line flicker long term pst"			
						Power Metric Value=[value]			
flickerPst	flickerPst is a value measured over 10 minutes that characterizes the likelihood that the voltage fluctuations would result in perceptible light flicker. A value of 1.0 is designed to represent the level that 50% of people would perceive flicker in a 60 watt incandescent bulb. The value reported is represented as an integer in hundredths.	Int48			Power line flicker short term pst Power Metric Value	Power Metric="Power line flicker short term pst"			

Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
harmonicVoltage	A measurement of the Harmonic Voltage during the period. For DC, distortion is with respect to a signal of zero Hz.	Int48			Harmonic voltage Power Metric Value	Power Metric Value=[value] Power Metric="Harmonic voltage"			
longInterruptions	A count of Long Interruption events (as defined by measurementProtocol) during the summary interval period.	Int48			Long interruptions Power Metric Value	Power Metric Value=[value] Power Metric="Long interruptions"			
mainsVoltage	A measurement of the Mains [Signaling] Voltage during the summary interval period in uV.	Int48			Mains voltage Power Metric Value	Power Metric Value=[value] Power Metric="Mains voltage"			
measurementProtocol	A reference to the source standard used as the measurement protocol definition. Examples are: 0 = IEEE1519-2009 = EN50160	UInt8			NO MAPPING	Power Metric Value=[value]			
powerFrequency	A measurement of the power frequency during the summary interval period in uHz.	Int48			Power frequency Power Metric Value	Power Metric="Power Frequency"	micro Hz		
rapidVoltageChanges	A count of Rapid Voltage Change events during the summary interval period	Int48			Rapid voltage changes Power Metric Value	Power Metric="Rapid voltage changes"			
shortInterruptions	A count of Short Interruption events during the summary interval period	Int48			Short interruptions Power Metric Value	Power Metric Value=[value] Power Metric="Short interruptions"			
summaryInterval.duration	Interval of summary period.Duration of the interval, in seconds.	Int		s	Summary Interval Duration	Power Metric Value=[value] Power Metric="Summary interval"			
summaryInterval.start	Interval of summary period.Date and time that this interval started	Time Stamp			Summary Interval Start Date	Power Metric Value=[value] Power Metric="Summary interval"			
supplyVoltageDips	A count of Supply Voltage Dip events during the summary interval period	Int48			Supply voltage dips Power Metric Value	Power Metric Value=[value] Power Metric="Supply voltage dips"			
supplyVoltageImbalance	A count of Supply Voltage Imbalance events during the summary interval period	Int48			Supply voltage imbalance Power Metric Value	Power Metric Value=[value] Power Metric="Supply voltage imbalance"			
supplyVoltageVariations	A count of Supply Voltage Variations during the summary interval period	Int48			Supply voltage variations Power Metric Value	Power Metric Value=[value] Power Metric="Supply voltage variations"			
tempOvervoltage	A count of Temporary Overvoltage events (as defined by measurementProtocol) during the summary interval period	Int48			Temporary over voltage Power Metric Value	Power Metric Value=[value] Power Metric="Temporary over voltage"			
ElectricPowerUsageSummary UsageSummary	[deprecated] Summary of usage for a billing period [extension] Summary of usage for a billing period								
billingPeriod.duration	The billing period to which the included measurements apply. May also be an off-bill arbitrary period. Duration of the interval, in seconds.	Int		s	Current billing period Interval Duration	Temporal Status="Current billing period"			
billingPeriod.start	The billing period to which the included measurements apply. May also be an off-bill arbitrary period. Date and time that this interval started	Time Stamp			Current billing period Interval Start Date	Power Metric Value=[value] Power Metric="Current billing period"			
billLastPeriod	The amount of the bill for the referenced billingPeriod in hundred-thousandths of the currency specified in the ReadingType for this reading (e.g., 840 = USD, US dollar).	Int48			Last billing period Resource Cost	Power Metric Value=[value] Power Metric="Last billing period"			
billToDate	If the summary contains data from a current period beyond the end of the referenced billingPeriod, the bill amount as of the date the summary is generated, in hundred-thousandths of the currency specified in the ReadingType for this reading. (e.g., 840 = USD, US dollar).	Int48			Billed to date Resource Cost	Resource Cost=[value] Power Metric="Billed to date"	\$		
costAdditionalLastPeriod	Additional charges from the for the referenced billingPeriod, in hundred-thousandths of the currency specified in the ReadingType for this reading. (e.g., 840 = USD, US dollar).	Int48			Additional to last billing period Resource Cost	Resource Cost=[value] Power Metric="Additional to last billing period"	\$		
costAdditionalDetailLastPeriod	[extension] Additional charges from the for the referenced billingPeriod which in total add up to costAdditionalLastPeriod.	LineItem			NO MAPPING	Resource Cost=[value]	\$		

Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
currency	The ISO 4217 code indicating the currency applicable to the bill amounts in the summary.	Currency	840 - USD 978 - EUR 36 - AUD 124 - CAD 756 - CHF 156 - CNY 208 - DKK 826 - GBP 392 - JPY 578 - NOK 643 - RUB 752 - SEK 356 - INR 0 - other		NO MAPPING				
overallConsumptionLastPeriod.powerOfTenMultiplier	[extension] The amount of energy consumed in the lfor the referenced billingPeriod. The multiplier part of the unit of measure, e.g. "kilo" (k)	PowerOfTenMultiplierType			NO MAPPING				
overallConsumptionLastPeriod.timeStamp	[extension] The amount of energy consumed in the lfor the referenced billingPeriod. The date and time (if needed) of the summary measurement.	TimeType			Last billing period Summary Interval Start Date	Temporal Status=" Last billing period"			
						Power Metric="Summary interval"			
						Interval Start Date=[value]			
overallConsumptionLastPeriod.uom	[extension] The amount of energy consumed in the lfor the referenced billingPeriod. The units of the reading, e.g. "Wh"	Int			Last billing period Summary interval Unit of Measure	Temporal Status=" Last billing period"			
						Power Metric="Summary interval"			
						Unit of Measure=[value]			SEE [ReadingType.uom] for list of unit mapping
overallConsumptionLastPeriod.value	[extension] The amount of energy consumed in the lfor the referenced billingPeriod. The total consumption for the billing period. The value of the summary measurement.	Int			Last billing period Summary interval Total Resource Value	Temporal Status=" Last billing period"			
						Power Metric="Summary interval"			
						Interval Measure="Total"			
						Resource Value=[value]			
overallConsumptionLastPeriod.readingTypeRef	[extension] The amount of energy consumed in the lfor the referenced billingPeriod. [extension] Reference to a full ReadingType.	xs:anyURI			NO MAPPING				
currentBillingPeriodOverAllConsumption.powerOfTenMultiplier	The total consumption for the billing period. The multiplier part of the unit of measure, e.g. "kilo" (k)	PowerOfTenMultiplierType			NO MAPPING				
currentBillingPeriodOverAllConsumption.timeStamp	The total consumption for the billing period. The date and time (if needed) of the summary measurement.	TimeType			Current billing period Summary Interval Start Date	Temporal Status="Current billing period"			
						Power Metric="Summary interval"			
						Interval Start Date=[value]			
currentBillingPeriodOverAllConsumption.uom	The total consumption for the billing period. The units of the reading, e.g. "Wh"	Int			Current billing period Summary interval Unit of Measure	Temporal Status="Current billing period"			
						Power Metric="Summary interval"			
						Unit of Measure=[value]			SEE [ReadingType.uom] for list of unit mapping
currentBillingPeriodOverAllConsumption.value	The total consumption for the billing period. The value of the summary measurement.	Int			Current billing period Summary interval Total Resource Value	Temporal Status="Current billing period"			
						Power Metric="Summary interval"			
						Interval Measure="Total"			
						Resource Value=[value]			
currentBillingPeriodOverAllConsumption.readingTypeRef	If the summary contains data from a current period beyond the end of the referenced billingPeriod, the total consumption for the billing period. [extension] Reference to a full ReadingType.	xs:anyURI			NO MAPPING				
currentDayLastYearNetConsumption.powerOfTenMultiplier	The amount of energy consumed one year ago interpreted as same day of week same week of year (see ISO 8601). The multiplier part of the unit of measure, e.g. "kilo" (k)	PowerOfTenMultiplierType			NO MAPPING				
currentDayLastYearNetConsumption.timeStamp	The amount of energy consumed one year ago interpreted as same day of week same week of year (see ISO 8601). The date and time (if needed) of the summary measurement.	TimeType			Current day last year Summary Interval Start Date	Temporal Status="Current day last year"			
						Power Metric="Summary interval"			
						Interval Start Date=[value]			

Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
		Int			Current day last year Summary interval Unit of Measure	Temporal Status="Current day last year"			
currentDayLastYearNetConsumption.uom	The amount of energy consumed one year ago interpreted as same day of week same week of year (see ISO 8601). The units of the reading, e.g. "Wh"					Power Metric="Summary interval"			
						Unit of Measure=[value]			SEE [ReadingType.uom] for list of unit mapping
currentDayLastYearNetConsumption.value	The amount of energy consumed one year ago interpreted as same day of week same week of year (see ISO 8601). The value of the summary measurement.	Int			Current day last year Summary interval Net Resource Value	Temporal Status="Current day last year"			
						Power Metric="Summary interval"			
						Resource Boundary="Net"			
						Resource Value=[value]			
currentDayLastYearNetConsumption.readingTypeRef	The amount of energy consumed one year ago interpreted as same day of week same week of year (see ISO 8601). [extension] Reference to a full ReadingType.	xs:anyURI			NO MAPPING				
currentDayNetConsumption.powerOfTenMultiplier	Net consumption for the current day (delivered - received). The multiplier part of the unit of measure, e.g. "kilo" (k)	PowerOfTenMultiplierType			NO MAPPING				
currentDayNetConsumption.timeStamp	Net consumption for the current day (delivered - received). The date and time (if needed) of the summary measurement.	TimeType			Current day Summary Interval Start Date	Temporal Status="Current day"			
						Power Metric="Summary interval"			
						Interval Start Date=[value]			
currentDayNetConsumption.uom	Net consumption for the current day (delivered - received). The units of the reading, e.g. "Wh"	Int			Current day Summary interval Unit of Measure	Temporal Status="Current day"			
						Power Metric="Summary interval"			
						Unit of Measure=[value]			SEE [ReadingType.uom] for list of unit mapping
currentDayNetConsumption.value	Net consumption for the current day (delivered - received). The value of the summary measurement.	Int			Current day Summary interval Net Resource Value	Temporal Status="Current day"			
						Power Metric="Summary interval"			
						Resource Boundary="Net"			
						Resource Value=[value]			
currentDayNetConsumption.readingTypeRef	Net consumption for the current day (delivered - received). [extension] Reference to a full ReadingType.	xs:anyURI			NO MAPPING				
currentDayOverallConsumption.powerOfTenMultiplier	Overall energy consumption for the current day. The multiplier part of the unit of measure, e.g. "kilo" (k)	PowerOfTenMultiplierType			NO MAPPING				
currentDayOverallConsumption.timeStamp	Overall energy consumption for the current day. The date and time (if needed) of the summary measurement.	TimeType			Current day Summary Interval Start Date	Temporal Status="Current day"			
						Power Metric="Summary interval"			
						Interval Start Date= [value]			
currentDayOverallConsumption.uom	Overall energy consumption for the current day. The units of the reading, e.g. "Wh"	Int			Current day Summary interval Unit of Measure	Temporal Status="Current day"			
						Power Metric="Summary interval"			
						Unit of Measure=[value]			SEE [ReadingType.uom] for list of unit mapping
currentDayOverallConsumption.value	Overall energy consumption for the current day. The value of the summary measurement.	Int			Current day Summary interval Total Resource Value	Temporal Status="Current day"			
						Power Metric="Summary interval"			
						Interval Measure="Total"			
						Resource Value=[value]			
peakDemand.powerOfTenMultiplier	Peak demand recorded for the current period. The multiplier part of the unit of measure, e.g. "kilo" (k)	PowerOfTenMultiplierType			NO MAPPING				
peakDemand.timeStamp	Peak demand recorded for the current period. The date and time (if needed) of the summary measurement.	TimeType			Demand Summary Interval Start Date	Interval Measure="Demand"			
						Power Metric="Summary interval"			
						Interval Start Date=Date of [value]			
peakDemand.uom	Peak demand recorded for the current period. The units of the reading, e.g. "Wh"	Int			Demand Summary interval Unit of Measure	Interval Measure="Demand"			
						Power Metric="Summary interval"			
						Unit of Measure=[value]			SEE [ReadingType.uom] for list of unit mapping
peakDemand.value	Peak demand recorded for the current period. The value of the summary measurement.	Int			Demand Summary interval Resource Value	Interval Measure="Demand"			
						Power Metric="Summary interval"			
						Resource Value=[value]			

Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
previousDayLastYearOverallConsumption.powerOfTenMultiplier	The amount of energy consumed on the previous day one year ago interpreted as same day of week same week of year (see ISO 8601). The multiplier part of the unit of measure, e.g. "kilo" (k)	PowerOfTenMultiplierType			NO MAPPING				
previousDayLastYearOverallConsumption.timeStamp	The amount of energy consumed on the previous day one year ago interpreted as same day of week same week of year (see ISO 8601). The date and time (if needed) of the summary measurement.	TimeType			Previous day last year Summary Interval Start Date	Temporal Status="Previous day last year"			
						Power Metric="Summary interval"			
						Interval Start Date=[value]			
previousDayLastYearOverallConsumption.uom	The amount of energy consumed on the previous day one year ago interpreted as same day of week same week of year (see ISO 8601). The units of the reading, e.g. "Wh"	Int			Previous day last year Summary interval Unit of Measure	Temporal Status="Previous day last year"			
						Power Metric="Summary interval"			
						Unit of Measure=[value]			SEE [ReadingType.uom] for list of unit mapping
previousDayLastYearOverallConsumption.value	The amount of energy consumed on the previous day one year ago interpreted as same day of week same week of year (see ISO 8601). The value of the summary measurement.	Int			Previous day last year Summary interval Total Resource Value	Temporal Status="Previous day last year"			
						Power Metric="Summary interval"			
						Interval Measure="Total"			
						Resource Value=[value]			
previousDayNetConsumption.powerOfTenMultiplier	Net consumption for the previous day. The multiplier part of the unit of measure, e.g. "kilo" (k)	PowerOfTenMultiplierType			NO MAPPING				
previousDayNetConsumption.timeStamp	Net consumption for the previous day. The date and time (if needed) of the summary measurement.	TimeType			Previous day Summary Interval Start Date	Temporal Status="Previous day"			
						Power Metric="Summary interval"			
						Interval Start Date=[value]			
previousDayNetConsumption.uom	Net consumption for the previous day. The units of the reading, e.g. "Wh"	Int			Previous day Summary interval Unit of Measure	Temporal Status="Previous day"			
						Power Metric="Summary interval"			
						Unit of Measure=[value]			SEE [ReadingType.uom] for list of unit mapping
previousDayNetConsumption.value	Net consumption for the previous day. The value of the summary measurement.	Int			Previous day Summary interval Net Resource Value	Temporal Status="Previous day"			
						Power Metric="Summary interval"			
						Resource Boundary="Net"			
						Resource Value=[value]			
previousDayOverallConsumption.powerOfTenMultiplier	The total consumption for the previous day. The multiplier part of the unit of measure, e.g. "kilo" (k)	PowerOfTenMultiplierType			NO MAPPING				
previousDayOverallConsumption.timeStamp	The total consumption for the previous day. The date and time (if needed) of the summary measurement.	TimeType			Previous day Summary Interval Start Date	Temporal Status="Previous day"			
						Power Metric="Summary interval"			
						Interval Start Date=[value]			
previousDayOverallConsumption.uom	The total consumption for the previous day. The units of the reading, e.g. "Wh"	Int			Previous day Summary interval Unit of Measure	Temporal Status="Previous day"			
						Power Metric="Summary interval"			
						Unit of Measure=[value]			SEE [ReadingType.uom] for list of unit mapping
previousDayOverallConsumption.value	The total consumption for the previous day. The value of the summary measurement.	Int			Previous day Summary interval Total Resource Value	Temporal Status="Previous day"			
						Power Metric="Summary interval"			
						Interval Measure="Total"			
						Resource Value=[value]			
qualityOfReading	Indication of the quality of the summary readings	QualityOfReading			Quality				BEDES constrained list values do not match all GreenButton values as noted below
			0 - valid		Valid	Quality="Valid"			
			7 - manually edited		Manually edited	Quality="Manually edited"			
			8 - estimated using reference day		NO MAPPING				
			9 - estimated using linear interpolation		NO MAPPING				
			10 - questionable		Questionable	Quality="Questionable"			
			11 - derived		NO MAPPING				
			12 - projected (forecast)		Projected	Quality="Projected"			
			13 - mixed		Mixed	Quality="Mixed"			

Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
			14 - raw		Raw	Quality="Raw"			
			15 - normalized for weather		NO MAPPING				
			16 - other		Other	Quality="Other"			
			17 - validated		Validated	Quality="Validated"			
			18 - verified		Verified	Quality="Verified"			
			19 - revenue-quality		NO MAPPING				
ratchetDemand.powerOffTenMultiplier	The current ratchet demand value for the ratchet demand period. The multiplier part of the unit of measure, e.g. "kilo" (k)	PowerOffTenMultiplierType			NO MAPPING				
ratchetDemand.timeStamp	The current ratchet demand value for the ratchet demand period. The date and time (if needed) of the summary measurement.	TimeType			Ratchet demand Summary Interval Start Date	Interval Measure="Ratchet demand"			
						Power Metric="Summary interval"			
						Interval Start Date=[value]			
ratchetDemand.uom	The current ratchet demand value for the ratchet demand period. The units of the reading, e.g. "Wh"	Int			Ratchet demand Summary interval Unit of Measure	Interval Measure="Ratchet demand"			
						Power Metric="Summary interval"			
						Unit of Measure=[value]			SEE [ReadingType.uom] for list of unit mapping
ratchetDemand.value	The current ratchet demand value for the ratchet demand period. The value of the summary measurement.	Int			Ratchet demand Summary interval Resource Value	Interval Measure="Ratchet demand"			
						Power Metric="Summary interval"			
						Resource Value=[value]			
ratchetDemandPeriod.duration	The period over which the ratchet demand applies. Duration of the interval, in seconds.	Int			Ratchet demand Interval Duration	Interval Measure="Ratchet demand"			
						Interval Duration=[value]			
ratchetDemandPeriod.start	The period over which the ratchet demand applies. Date and time that this interval started	Time Stamp			Ratchet Demand Interval Start Date	Interval Measure="Ratchet demand"			
						Interval Start Date=[value]			
statusTimeStamp	Date/Time status of this UsageSummary	TimeType			Summary Interval Start Date	Power Metric="Summary Interval"			
						Interval Start Date=[value]			
commodity	[extension] The commodity for this summary report	CommodityKind			Resource				BEDES constrained list values do not match all GreenButton values as noted below
			0 - none		None	Resource="None"			
			1 - electricity SecondaryMetered		Electricity Secondary	Resource="Electricity"			
						Priority="Secondary"			
			2 - electricity PrimaryMetered		Electricity Primary	Resource="Electricity"			
						Priority="Primary"			
			3 - communication		NO MAPPING				
			4 - air		NO MAPPING				
			5 - insulativeGas		NO MAPPING				
			6 - insulativeOil		NO MAPPING				
			7 - naturalGas		Natural Gas	Resource="Natural Gas"			
			8 - propane		Propane	Resource="Propane"			
			9 - potableWater		Potable water	Resource="Potable water"			
			10 - steam		Distric steam	Resource="Distric steam"			
			11 - wasteWater		Wastewater	Resource="Wastewater"			
			12 - heatingFluid		NO MAPPING				
			13 - coolingFluid		NO MAPPING				
			14 - nonpotableWater		Alternative water				
			15 - nox		NO MAPPING				
			16 - so2		NO MAPPING				
			17 - ch4		CH4	Emission Gas Type="CH4"			
			18 - co2		CO2	Emission Gas Type="CO2"			
			19 - carbon		NO MAPPING				
			20 - hch		NO MAPPING				
			21 - pfc		NO MAPPING				
			22 - sf6		NO MAPPING				
			23 - tvLicence		NO MAPPING				
			24 - internet		NO MAPPING				
			25 - refuse		NO MAPPING				
tariffProfile	[extension] A schedule of charges; structure associated with Tariff that allows the definition of complex tariff structures such as step and time of use.	String256			Rate Structure Reference	Rate Structure Reference=[value]			



Green Button Field	Green Button Definition	Green Button Data Type	Green Button List Value	Green Button Units	BEDES Term	BEDES Mapping	BEDES Units	Unit Conversion	Notes
kind	Service classification Examples are: 0 - electricity 1 - gas The list of specific valid values per the standard are itemized in ServiceKind.	ServiceKind			Resource				BEDES constrained list values do not match all GreenButton values as noted below
			0 - electricity		Electricity	Resource="Electricity"			
			1 - gas		Natural gas	Resource="Natural gas"			
			2 - water		Water	Resource="Water"			
			3 - time		NO MAPPING				
			4 - heat		NO MAPPING				
			5 - refuse		NO MAPPING				
			6 - sewerage		NO MAPPING				
			7 - rates		NO MAPPING				
			8 - tvLicence		NO MAPPING				
			9 - internet		NO MAPPING				
ServiceDeliveryPoint	[extension] Service Delivery Point is representation of revenue UsagePoint attributes								
name	The name is any free human readable and possibly non unique text naming the object.	String256			NO MAPPING				
tariffProfile	A schedule of charges; structure associated with Tariff that allows the definition of complex tariff structures such as step and time of use.	String256			NO MAPPING				
customerAgreement	Agreement between the customer and the ServiceSupplier to pay for service at a specific service location. It provides for the recording of certain billing information about the type of service provided at the service location and is used during charge creation to determine the type of service.	String256			Customer Agreement Description	Contact Label="Customer agreement"			
LineItem	[extension] Line item of detail for additional cost					Description=[value]			
amount	Cost of line item.	Int48			Cost	Cost=[value]			
rounding	Rounded to nearest increment.	Int48			NO MAPPING				
dateTime	Significant date for line item.	TimeType			Date	Date=[value]			
note	Comment or description of line item.	String256			Description	Description=[value]			
measurement	[extension] relevant measurement for line item.	SummaryMeasurement			NO MAPPING				
itemKind	[extension] Classification of a line item -- i.e. usage charge, taxes, etc.	ItemKind			NO MAPPING				
	Energy Generation Fee. A charge for generation of energy.	UInt16		1					
	Energy Delivery Fee. A charge for delivery of energy.			2					
	Energy Usage Fee. A charge for electricity, natural gas, water consumption			3					
	Administrative Fee. A fee for administrative services.			4					
	Tax. A local, state, or federal energy tax.			5					
	Energy Generation Credit. A credit, discount or rebate for generation of energy.			6					
	Energy Delivery Credit. A credit, discount or rebate for delivery of energy.			7					
	Administrative Credit. A credit, discount or rebate for administrative services.			8					
	Payment. A payment for a previous billing.			9					
	Information. An informational line item.			10					