ICS 33.200

中華民國國家標準
ＣＮＳ

電力公用事業應用整合－配電管理之系統介面－第 8 部：用戶運作介面

Application integration at electric utilities – system interfaces for distribution management – Part 8: Interfaces for customer operations

草-制 1130171

目錄

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前言

本標準係依據 2015 年發行之第 1.0 版 IEC TR 61968-8，不變更技術內容，制定成為中華民國國家標準者。

本標準係依標準法之規定，經國家標準審查委員會審定，由主管機關公布之中華民國國家標準。

依標準法第四條之規定，國家標準採自願性方式實施。但經各該目的事業主管機關引用全部或部分內容為法規者，從其規定。

本標準並未建議所有安全事項，使用本標準前應適當建立相關維護安全及健康作業，並且遵守相關法規之規定。

本標準之部分內容，可能涉及專利權、商標權與著作權，主管機關及標準專責機關不負責任何或所有此類別專利權、商標權與著作權之鑑別。

簡介

本標準旨在定義用戶支援(customer support, CS)之整合的標準，其將包括與本系列標準適用範圍內之其他系統及營運功能整合的用戶服務(customer service)、障礙管理(trouble management)及銷售點(point of sale)相關組件。本標準之適用範圍為用戶支援系統與公用事業企業內其他系統間的資訊交換。

備考：本系列標準過去編號為 CNS 15821-2 及 CNS 15873-1，未來皆使用 CNS 61968 之編號，以便與 IEC 61968 系列標準調和。

本系列標準旨在促進應用系統間之整合，而非應用系統內之整合。應用系統內之整合係鎖定同一應用系統中之程式，通常以使用嵌入其下運行時環境中的中介軟體(middleware)溝通，且往往傾向於最佳化緊密、即時、同步連接及互動式請求/回覆或交談通訊模型。對比之下，本系列標準旨在支援公用事業企業的應用系統間之整合，其需連接已建置或新建置之不同應用系統(舊有或新購置的應用系統)，各由不同運行時環境所支援。因此，此等介面標準係與鬆散耦合之應用系統相關，此等應用系統於語言、作業系統、協定及管理工具方面具較多異質性。本系列標準旨在支援需每隔幾秒鐘、幾分鐘或幾小時交換資料之應用系統，而非等待夜間之批次運行。本系列標準旨在以於應用系統間交換訊息之中介軟體服務實作，將補充而非取代公用事業資料倉儲、資料庫閘道器及運作儲存體。

依本系列標準中所使用，配電管理系統(distribution management system, DMS)由各種分散式應用組件組成，用於公用事業管理配電網。此等能力包括監視並控制配電設備，以確保系統可靠度之管理過程、電壓管理、需求面管理、停電管理、作業管理、自動對映及設施管理。標準介面定義介面參考模型(interface reference model, IRM)中所識別之各類別應用，其係描述於〝CNS 15873-1 電力公用事業應用整合 - 配電管理之系統介面 - 第 1 部：介面架構及一般規定〞中。

本標準包含表 1 中列出之節次。

表 1 本標準之概觀

節次	標題	用途
第 1 節	適用範圍	描述本標準之適用範圍及用途。
第 2 節	引用標準	包含因本標準所引用之條款，成為本標準一部分之標準。
第 3 節	用語定義及縮寫	
第 4 節	參考模型及資訊模型	描述用戶支援、參考模型、介面參考模型、用戶支援功能及組件、訊息型式用語及靜態資訊模型之一般作法。
第 5 節	用戶支援訊息型式	用於用戶服務相關文件之資訊交換相關的訊息型式。
附錄 A	訊息酬載之 XML 綱要樣本	提供僅供參考之 XSD 資訊。

1. 適用範圍

本標準規定一組訊息型式的資訊內容，其能用以支援許多與用戶支援相關之營運功能。訊息型式之典型使用包括服務請求、用戶協議及障礙管理。

本標準之目的為定義用戶支援(customer support, CS)整合的標準，其將包括與本系列標準適用範圍內之其他系統及營運功能整合的用戶服務(customer service)、障礙管理(trouble management)及銷售點(point of sale)相關組件。本標準之適用範圍為用戶支援系統與公用事業企業內其他系統間的資訊交換。

2. 引用標準

下列標準因本標準所引用，成為本標準之一部分。有加註年分者，適用該年分之版次，不適用於其後之修訂版(包括補充增修)。無加註年分者，適用該最新版(包括補充增修)。

CNS 15873-1　　電力公用事業應用整合 - 配電管理之系統介面 - 第 1 部：介面架構及一般規定

CNS 15821-2　　電力公用事業應用整合 - 配電管理系統介面 - 第 2 部：詞彙

CNS 61968-11　　電力公用事業應用整合 - 配電管理之系統介面 - 第 11 部：配電之共同資訊模型(CIM)延伸

CNS 61970-301　能源管理系統應用程式介面(EMS-API) - 第 301 部：共同資訊模型(CIM)基底

IEC 61968-6　　Application integration at electric utilities – System interfaces for distribution management – Part 6: Interfaces for maintenance and construction

IEC 61968-100　Application integration at electric utilities – System interfaces for distribution management – Part 100: Implementation profiles

3. 用語定義及縮寫

3.1 用語及定義

CNS 15821-2、IEC 60050-300、IEC 62051 及 IEC 62055-31 之用語及定義，以及下列用語及定義適用於本標準。。

若本標準中之定義與其他引用標準的定義存在差異，則 CNS 15821-2 中所定義者應優先於所列出之其他標準。

3.2 縮寫

CIM　　　共同資訊模型(common information model)

CIS　　　用戶資訊系統(customer information system)

CRM　　　用戶關係管理(customer relationship management)

CSR　　　用戶服務代表(customer service representative)

ERT　　　估計之復電時間(estimated restoration time)

IVR　　　互動式語音回應(interactive voice response)

NO　　　電網運作(network operation)

OMS　　　停電管理系統(outage management system)

POS　　　銷售點(point of sale)

UML　　　統一建模語言(unified modelling language)

WM　　　作業管理(work management)

XSD　　　XML綱要定義(XML schema definition)

4 參考模型及資訊模型

4.1 參考模型

4.1.1 一般

圖1中之圖示用作參考模型,並提供與本標準全景相關的邏輯組件及資料流示例。

圖1描述本標準中所定義組件與CNS 15873-1中所定義參考模型中的組件間之資訊流。
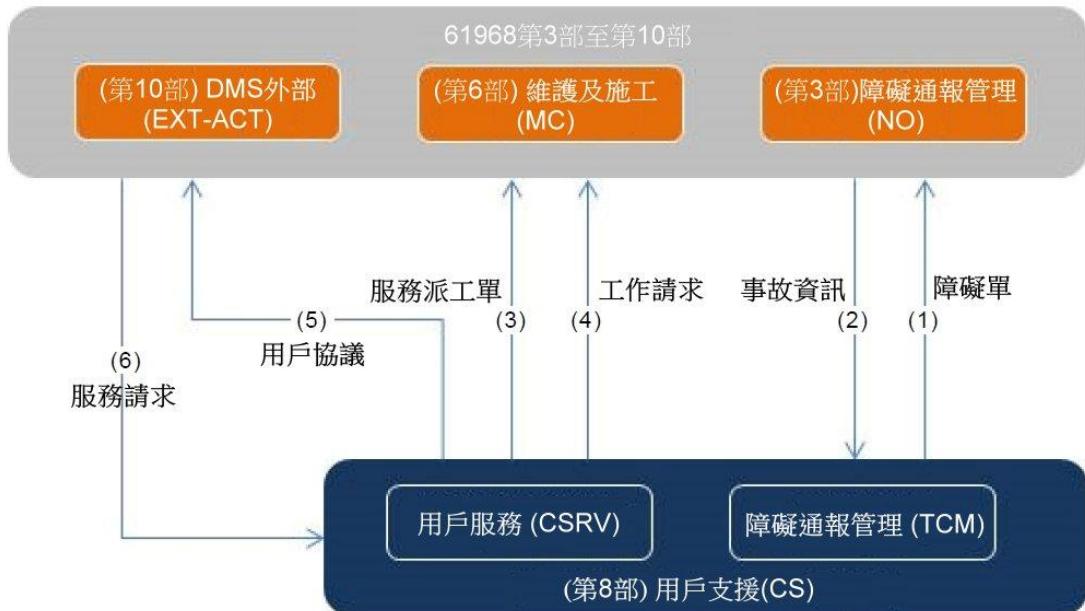
圖 1　本 標 準 全 景 模 型

4.1.2 用戶支援(CS)

用 戶 支 援 (customer support, CS)之 典 型 任 務：

- 用 戶 服 務 可 包 括 但 不 限 於 用 戶 查 詢 、 新 服 務 、 方 案 登 錄 及 服 務 或 工 作 請 求 更 新 。

- 障 礙 通 報 管 理 (trouble call management)可 包 括 但 不 限 於 源 自 用 戶 及 非 用 戶 申 報 之 障 礙 通 報 、 停 電 通 知 及 復 電 更 新 。

4.2 用 戶 支 援 功 能 及 組 件

表 2 顯 示 此 等 功 能 及 典 型 抽 象 組 件, 其 係 預 期 將 用 於 此 等 訊 息 型 式 之 資 訊 產 生 者 。 資 訊 之 典 型 耗 用 者 包 括 但 不 限 於 CNS 15873-1 中 所 列 出 的 其 他 組 件 。

表 2　營 運 功 能 及 抽 象 組 件

用戶支援 **(customer support, CS)**	用戶服務 (Customer service, CSRV)	服務請求(service request)
		施工帳單查詢(construction billing inquiry)
		帳單查詢(billing inquiry)
		作業狀態(work status)
		自助查詢(self-service inquiry)
		用戶接電(customer connection)
		開啟(turn on)、關閉(turn off)

		線路損耗(line loss)
		服務水準協議(service level agreement)
		用戶資訊分析(customer information analysis)
		用戶資訊管理(customer information management)
		用戶關係管理(customer relationship management)
	障礙通報管理 (Trouble call management, TCM)	停電通報(outage call)
		電力品質(power quality)
		計畫性停電通知(planned outage notification)
		介質通訊(media communication)
		效能指標(performance indix)
		復電計畫/確認(restoration projection/confirmation)
		停電歷程(outage history)
	銷售點 (point of sale,　POS)	

4.3 靜態資訊模型

4.3.1 一般

與用戶支援相關之資訊模型由類別組成，其為各訊息之屬性提供模板。

該等類別詳細定義於 CNS 61968-11〝電力公用事業應用整合 - 配電管理之系統介面 - 第 11 部：配電之共同資訊模型(CIM)延伸〞中，或於 CNS 61970-301〝能源管理系統應用介面(EMS-API) - 第 301 部：共同資訊模型(CIM)基底〞中。

4.3.2 用戶支援之類別

表 3 列出於訊息型式內使用之類別。通常此等類別之所有屬性包含於訊息型式內。所提供之說明描述於本標準中的用法。

描述為〝Customer〞型式之類別係定義於 CIM 的 61968/customer 套件中。

<div align="center">表 3　用戶支援類別</div>

類別/名詞	套件	說明
Customer	Customers	自服務提供者接收服務之組織。

類別/名詞	套件	說明
CustomerAgreement	Customers	用戶與服務供應者間之協議,於特定服務位置支付服務費用。其記錄關於服務位置所提供服務型式之某些計費資訊,並於收費建立期間使用,以判定服務型式。
DemandResponseProgram	Metering	需量反應方案。
Incident	Operations	場域中問題之說明,其可能於障礙單(trouble ticket)中報告或源自其他來源。其可能與停電有關。
Location	Common	某人或某物於給定時刻曾經、目前及/或將出現之位置、場景或點。其能以給定座標系統中之 1 或多個位置點(座標)定義之。
Outage	Operations	描述部分電網現用或計畫性停電詳情之文件。 可能依下列事項,建立非計畫性停電: - 斷路器跳脫。 - 故障指示器狀態變更。 - 指示用戶停電之表計事件。 - 接到用戶之 1 或多個障礙通報。 - 運作者命令,反映獲取自現場工班(field crew)之資訊。 可能使用切換計畫履行停電復電,其以詳細切換活動,補充停電資訊,包括與工班及作業之關係。 可能依下列事項,建立計畫性停電: - 對場域中服務、維護或施工作業之請求。 - 營運者定義對若-則/緊急電網分析之停電。 相關聯之停電計畫,定義運作限制事項及基元開關動作,以定義套用後將導致如網路分析所要求的全部或部分設備停電的變更。
ServiceCategory	Customers	提供予用戶之服務種類。
ServiceLocation	Customers	房地產位置,通常稱為場所。
TroubleTicket	Customers	提供有關電網障礙詳情之文件。
Work	Work	用以請求、起始、追蹤及記錄工作之文件。

備考:此處提供之類別定義僅係為方便之目的。規定性定義係由 CNS 61968-11 提供,其描述 IEC CIM 標準之配電延伸。

5. 用戶支援訊息型式

5.1 一般

本節之目的係描述與本標準相關的訊息型式。須注意，其某些訊息型式亦可能由本系列標準其他部所使用。實現本系列標準訊息之訊息結構及 XML 綱要的一般作法係描述於 CNS 15873-1 及 IEC 61968-100 中。

亦須注意，本標準中提供之使用案例及循序圖本質上係供參考，旨在提供規定訊息定義的使用示例。本標準無意標準化特定營運過程。

5.2 障礙單

5.2.1 一般

許多公用事業依用戶申報開始識別配電電路障礙區段的位置之過程。障礙單(trouble ticket)係公用事業與用戶間之通訊機制，用於起始分析以判定針對復電服務最好的部署場域人員。障礙單通常係依與用戶直接交談建立。障礙單亦依自動通報接聽系統之用戶報告，以及 AMI 表計的停電報告建立。障礙單包含用戶申告之資訊。一旦建立，障礙單可發送予 OMS，用於進行進一步處理。

圖 2 提供循序圖，顯示使用障礙單訊息之 CIS 與 OMS 間通訊的使用案例。圖 3 呈現顯示障礙單訊息內容之 XSD 圖。
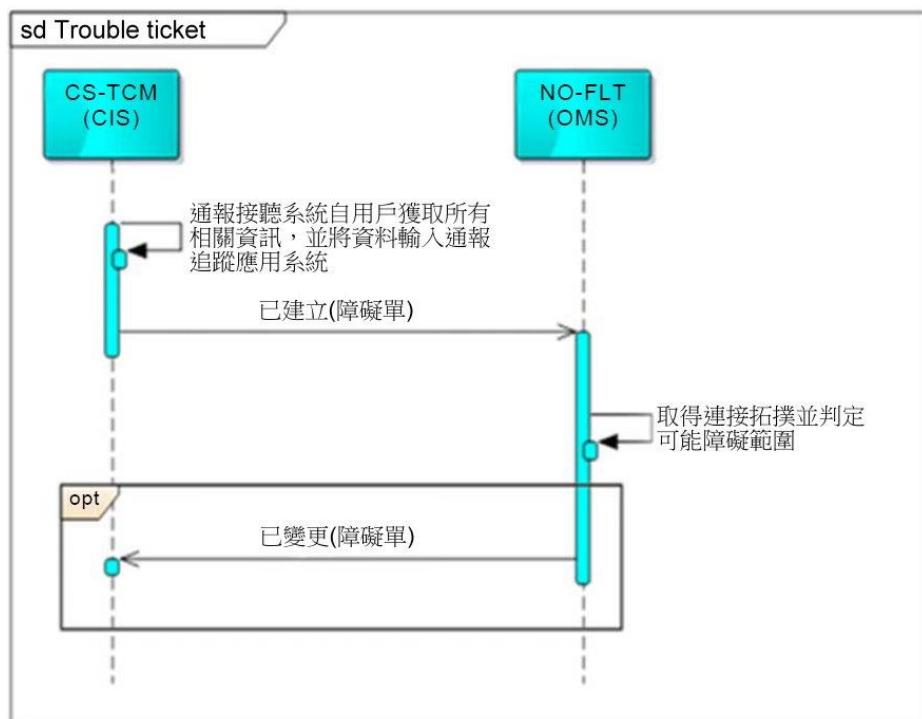
圖 2　CIS 與 OMS 間障礙單交換的示例

5.2.2 訊息格式
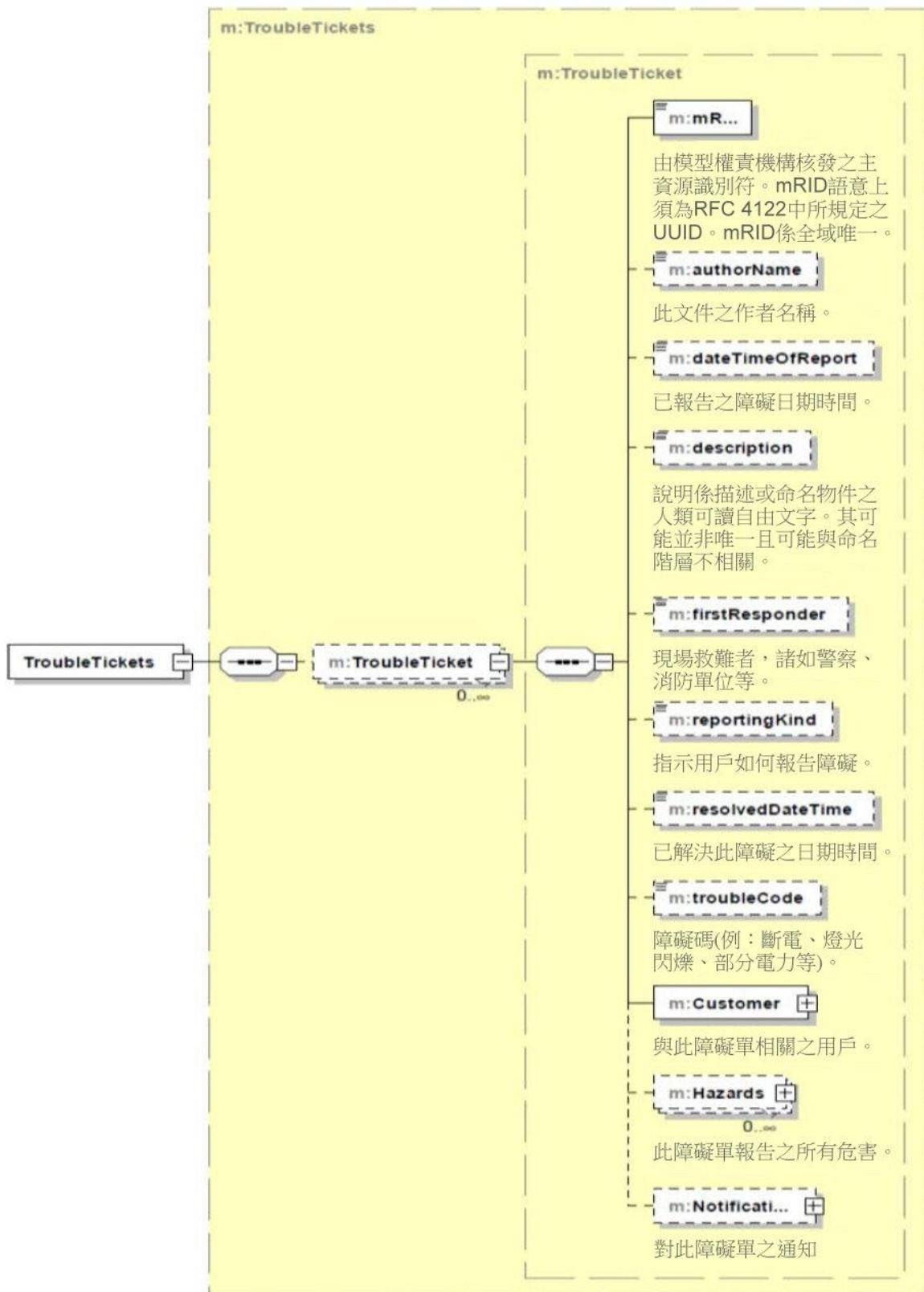
圖 3　障 礙 單 訊 息

5.3 事 故 資 訊

5.3.1 一般

當發生停電且已確認停電時，公用事業通常能依事件係於停電管理程序之位置，提供估計之復電時間(estimated restoration time, ERT)。對停電管理發出請求，用以於指派予停電事故之特定障礙單上更新狀態，或於建立障礙單前判定事故是否已存在(參照圖 4，顯示此訊息交換的使用案例)。

當進行障礙通報時，某些通報者於復電階段之特定點請求通報回覆；例：工班到達時或恢復供電時。需於通報回覆到期時建立此訊息，並列出須通報回覆之用戶。儘管事故資訊訊息係由停電管理系統(OMS)產生，但其係納入本標準，以完成 CIS 與 OMS 間之互動，且當該訊息納入 IEC 61968-3 中時，將從本標準中刪除。圖 5 詳述事故資訊訊息之內容，包括 CIS 及 OMS 所須的元件。
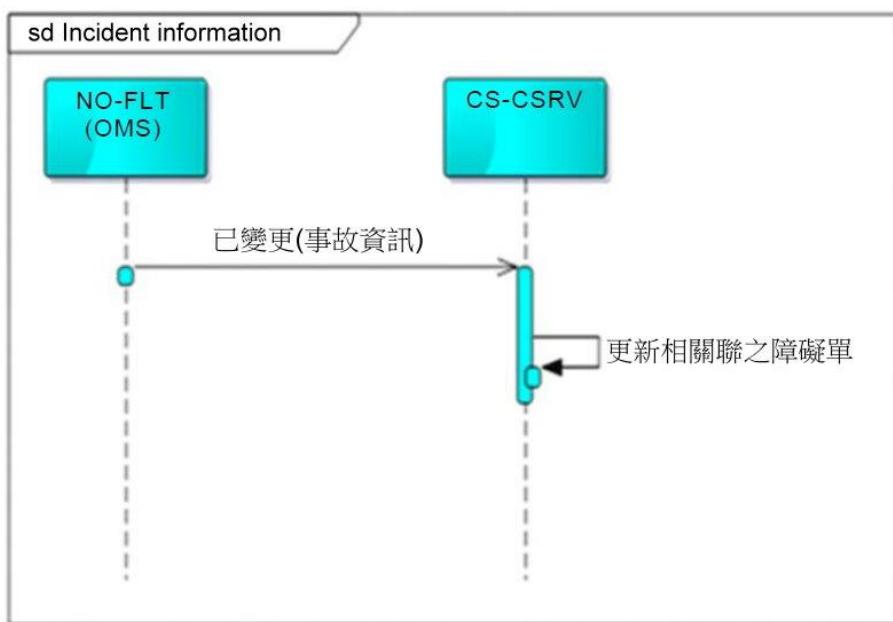
圖 4　CIS 與 OMS 間事故資訊交換的示例

5.3.2 訊息格式
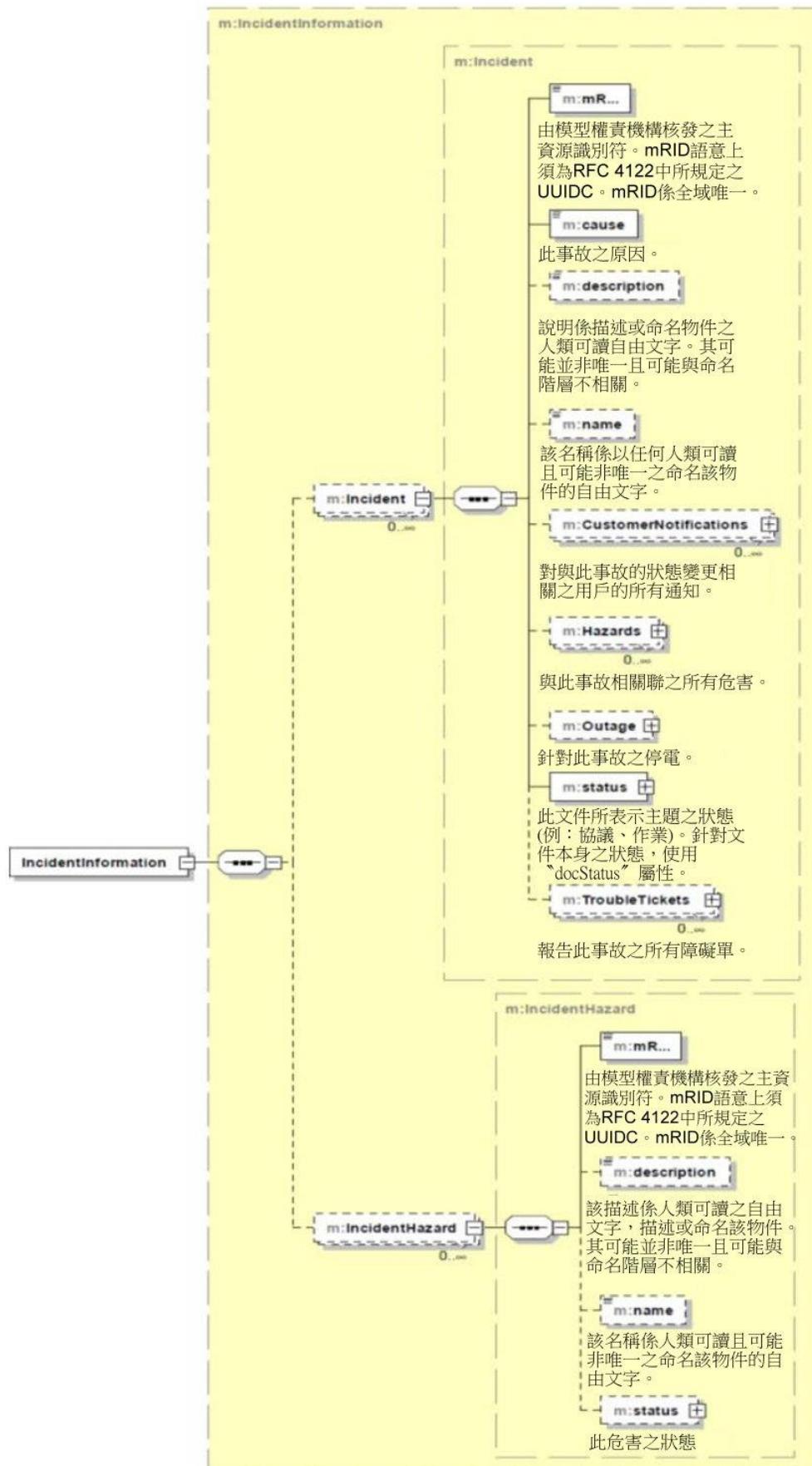
圖 5　事故資訊訊息

5.4 服務請求

5.4.1 一般

用戶起始服務請求，作為其與公用事業之主要聯絡窗口。用戶之服務請求可包括但不限於：

- 請求開啟或關閉既有服務(遷入/遷出或季節性等)。

- 請求新服務(車庫電氣化或新房屋等)。

- 請求調查電力品質或既有服務之其他問題 (非障礙或停電通報)。

- 用戶方案(customer program)中之登錄或取消登錄(需量反應等)。

- 帳戶議題(帳單查詢或高額帳單投訴等)。

可起始服務請求：

- 前往公用事業營業處接洽客服人員(CSR)。

- 經由網際網路連接至 CIS 或 CRM 系統。

- 透過自動化 IVR 系統。

- 經由電話聯絡 CSR。

一旦接收到服務請求，CIS 將其發送予 WMS，進行進一步處理(參照圖 6)。

服務請求可能：

- 由用戶服務代表手動處置。

- 建立服務派工單(service order)並指派予現場服務技術人員/工班。

- 於作業管理中建立工作請求，此又可產生作業派工單或其他某些動作。

服務請求通常係藉由人工處置，但日益要求前端系統(諸如 IVR 及 CRM)間之電子表示，其將服務請求訊息(訊息內容參照圖 7)發送至用戶資訊系統。
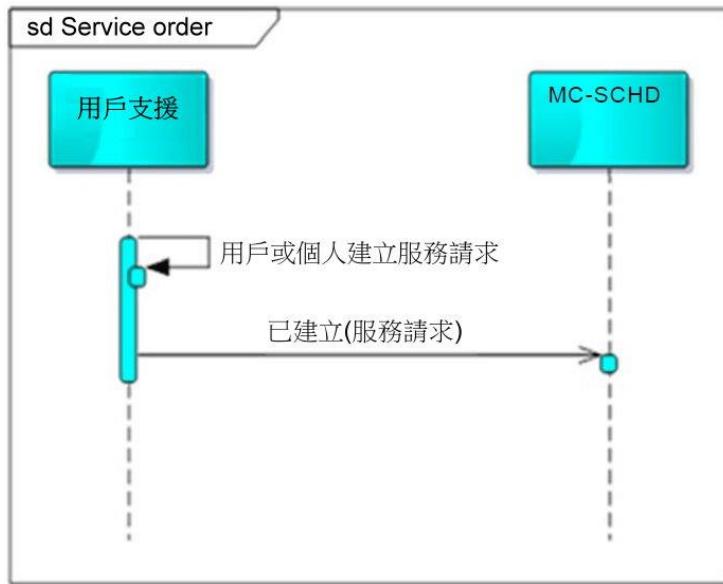
圖 6 CIS 與 WMS 間服務請求交換示例

5.4.2 訊息格式

m:ServiceRequests

- m:ActivityRecord
  0..∞

- m:Customer
  0..∞

  m:Customer

  - m:mR...
    由模型權責機構核發之
    主資源識別符。mRID語
    意上須為RFC 4122中所規
    定之UUID。mRID係全域唯一。

  - m:kind
    用戶之種類。

  - m:pucNumber
    (適用時)公用事業委員會
    (PUC)識別號碼。

  - m:specialNeed
    若用戶組織有特殊服務需要
    (例：生命維持、醫院等)，
    則為TRUE。

  - m:vip
    (以使用優先序替代)若此係重要用戶，
    則為TRUE。不同於〝specialNeed〞
    屬性之事項的重要性。

  - m:CustomerAgreements
    0..∞
    此用戶之所有協議。

  - m:Names
    0..∞
    所識別物件之所有名稱。

  - m:status
    此用戶之狀態。

ServiceRequests

- m:Meter
  0..∞

  m:Meter

  - m:mR...
    由模型權責機構核發之
    主資源識別符。mRID語
    意上須為RFC 4122中所規
    定之UUID。mRID係全域唯一。

  - m:amrSystem
    自動讀表(AMR)或負責與
    該端末裝置通訊之其他
    通訊系統。

  - m:formNumber
    依ANSI C12.10或其他適用
    標準之表計形式指定。代表
    表計適用之電路安排及其特
    定端子安排的文數字指示。

  - m:serialNumber
    此表計之序號。

  - m:MeterMultipliers
    0..∞
    套用於此表計之所有倍數。

  - m:MeterReadings
    0..∞
    此表計所提供之
    所有表計讀數。

  - m:Names
    0..∞
    此經識別物件之所有名稱。

- m:WorkTask
  0..∞

- m:WorkTimeSchedule
  0..∞

圖 7　服 務 請 求 訊 息

5.5 服務派工單

5.5.1 一般

服務派工單(service order)係本系列標準第 6 部訊息，當用戶服務需於用戶場所完成某些作業時建立。服務派工單之建立係作為對服務請求之 1 種可能回應。

服務派工單包含現場服務技術人員或工班履行用戶請求之作業的資訊，諸如：

• 服務連接/解連。

• 電力品質/高額帳單調查。

• 表計服務，諸如更換表計。

圖 8 顯示當交換服務派工單訊息時，CIS 與 WMS 間之作業流程。

依定義，服務派工單定義於既有服務上待履行之作業，因此通常包括帳戶及既有場所資訊。若要求新服務，則須維護派工單(maintenance order)或施工派工單(construction order)。安裝新服務之維護派工單的最終工作通常為表計設定(meter set)。此職務通常由現場服務工班或技術人員履行，因此表計設定可作為服務派工單或維護派工單之一部分進行，具體取決於公用事業。
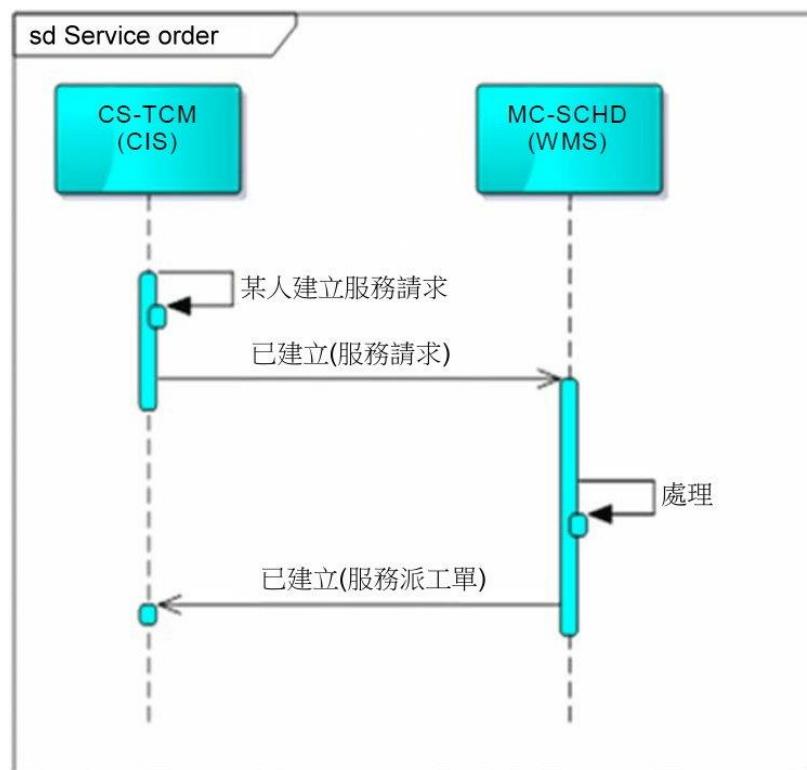
圖 8　CIS 與 WMS 間之服務派工單交換的示例

服務派工單訊息係完整定義於本系列標準第 6 部中。

5.6 工作請求

5.6.1 一般

工作請求(work request)係本系列標準第 6 部訊息，通知作業管理可能須對公司資產進行某些作業。雖有許多作業管理起始建立工作請求之使用案例(諸如檢驗及維護)，但本節描述由用戶支援組織所建立的工作請求。

工作請求係用戶服務組織與工程或維護組織間之主要聯絡窗口。圖 9 顯示 CIS 與 WMS 間之工作請求訊息交換。

用戶服務建立工作請求的之典型原因包括：

• 新用戶希望建立新服務，諸如建造新房屋時。

• 既有用戶希望延伸其服務，諸如為先前未接電之車庫新增電力。

• 既有用戶希望修改其服務，諸如由 100 A 服務升級至 200 A 服務。

工程可於作業管理系統中建立維護派工單或施工派工單，以追蹤於現場待履行之估計、設計、規劃及最終施工工班任務。其他公用事業僅於現場有實際作業待完成時才建立維護派工單或施工派工單。

可能導致建立維護派工單或施工派工單之其他過程包括幫助施工或其他評估的貢獻。

用戶最終可於收到估價後拒絕完成工作，就許多公用事業而言，此意指恆不依工作請求建立維護派工單或施工派工單。

工作請求包含最終建立施工派工單或維護派工單所需之盡可能多的資訊。
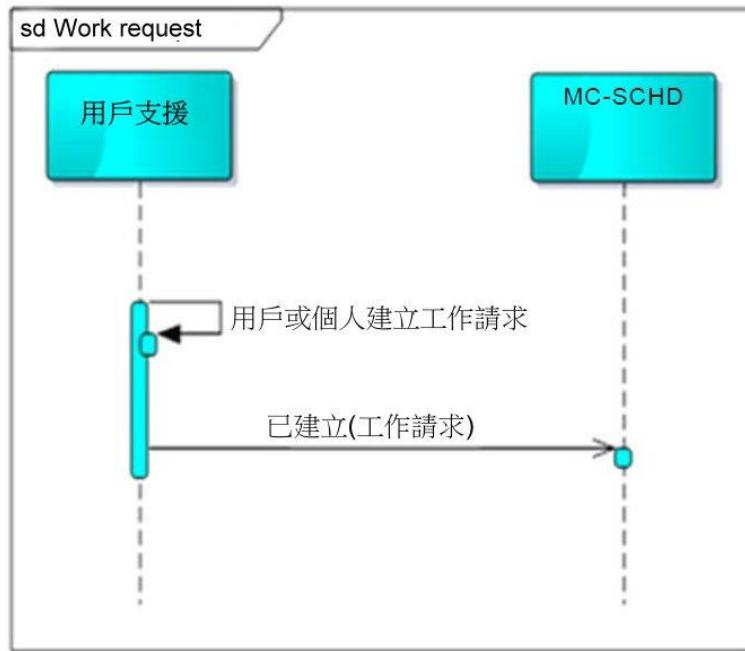
圖 9　CIS 與 WMS 間之工作請求交換的示例

工作請求訊息以及維護派工單及施工派工單訊息係定義於本系列標準第 6 部中。

5.7 用戶協議

5.7.1 一般

用戶服務協議(customer service agreement)登載公用事業與用戶間提供電力之條款及條件。並非所有公用事業要求用戶服務協議;然而,公用事業將對請求之用戶接電,指定適切的費率。

圖 10 提供循序圖,顯示使用用戶協議訊息之 CIS 與外部或第三方系統間通訊的使用案例。圖 11 呈現 XSD 圖,顯示用戶協議組態訊息之內容。
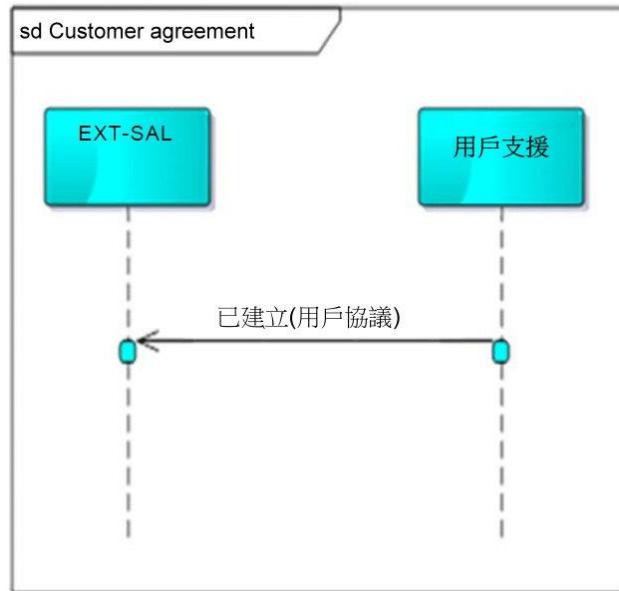
圖 10　CIS 與 外 部 或 第 三 方 系 統 間 之 用 戶 交 換 的 示 例

5.7.2 訊息格式
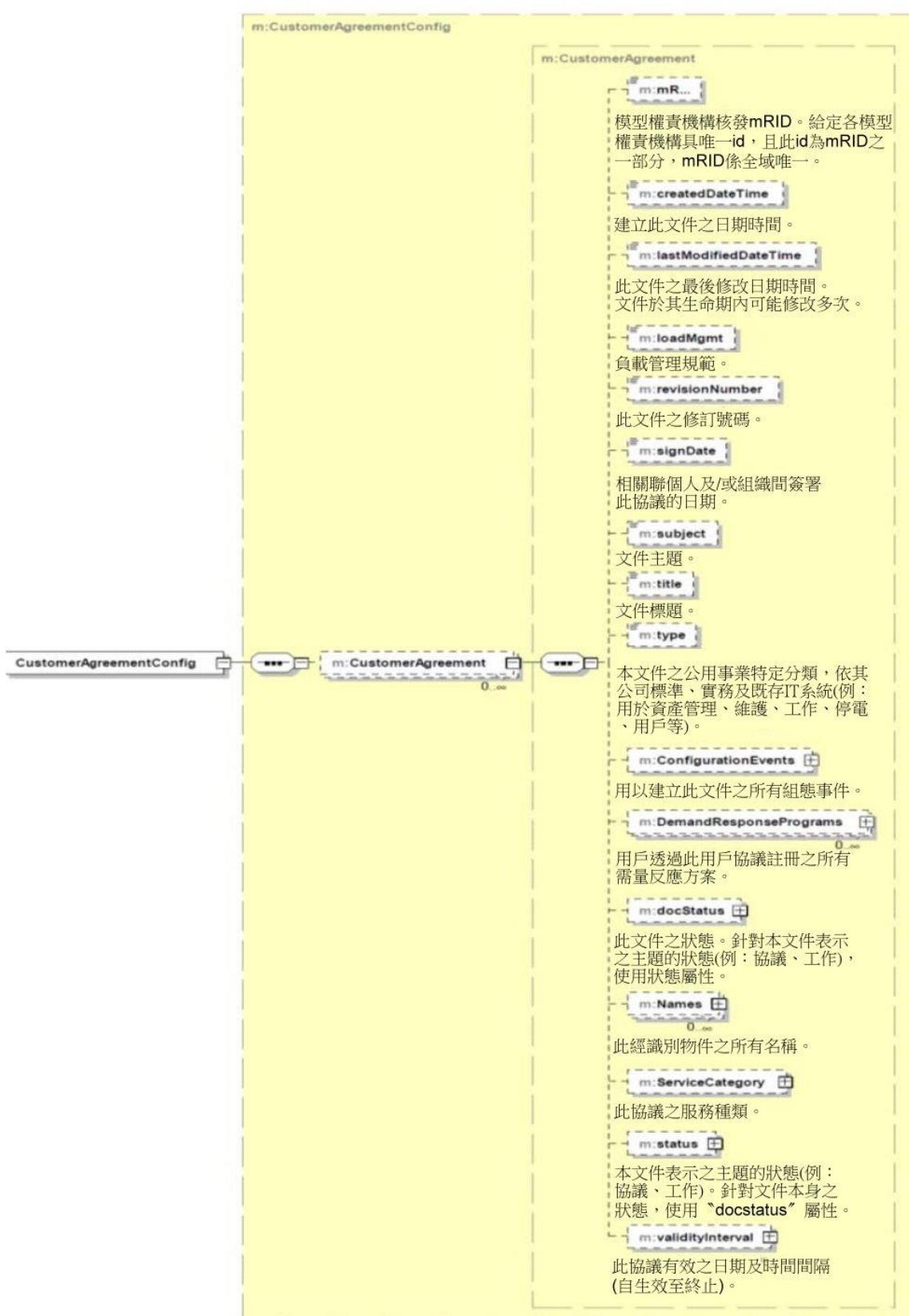
圖 11　用 戶 協 議 訊 息

附 錄 A

（規定）

用 於 訊 息 酬 載 之 XML 綱 要

Annex A

（normative）

XML schemas for message payloads

本 附 錄 之 目 的 係 提 供 訊 息 酬 載 之 XML 綱 要（參照 圖 A.1、 圖 A.2、 圖 A.3 及 圖 A.4），

以 擴 增 本 標 準 前 面 所 提 供 的 描 述 。 此 等 XML 綱 要 係 使 用 CIMTool 中 之 剖 繪 定 義 所 定

義 。 針 對 特 定 實 作 需 要 ， 此 等 綱 要 可 依 需 要 予 以 延 伸 。

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:a="http://langdale.com.au/2005/Message#"
xmlns:sawsdl="http://www.w3.org/ns/sawsdl" xmlns="http://langdale.com.au/2005/Message#"
xmlns:m="http://iec.ch/TC57/2014/TroubleTickets/1#" targetNamespace="http://iec.ch/TC57/2014/TroubleTickets/1#"
elementFormDefault="qualified" attributeFormDefault="unqualified">
    <xs:annotation>
        <xs:documentation/>
    <xs:annotation>
    <xs:element name="TroubleTickets" type="m:TroubleTickets"/>
    <xs:complexType name="TroubleTickets">
        <xs:sequence>
            <xs:element name="TroubleTicket" type="m:TroubleTicket" minOccurs="0"
<maxOccurs="unbounded"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="Customer" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Customer">
        <xs:annotation>
            <xs:documentation>Organisation receiving services from service supplier.</xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element name="mRID" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                <xs:annotation>
                    <xs:documentation>Master resource identifier issued by a model authority.
The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
                    <xs:documentation>For CIMXML data files in RDF syntax, the mRID is
mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
                </xs:annotation>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="CustomerNotification"sawsdl:modelReference="http://iec.ch/TC57/CIM
generic#CustomerNotification">
        <xs:annotation>
            <xs:documentation>Conditions for notifying the customer about the changes in the status of their
service (e.g., outage restore, estimated restoration time, tariff or service level change, etc.)</xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element name="contactType" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerNotification.contactType">
                <xs:annotation>
                    <xs:documentation>Type of contact (e.g., phone, email,etc.).</xs:documentation>
```

```xml
                    </xs:annotation>
                  </xs:element>
                  <xs:element name="contactValue" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerNotification.contactValue">
                      <xs:annotation>
                        <xs:documentation>Value of contact type (e.g., phone number, email
address, etc.).</xs:documentation>
                      </xs:annotation>
                  </xs:element>
                  <xs:element name="earliestDateTimeToCall" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerNotification.earliestDateTimeToCall">
                      <xs:annotation>
                        <xs:documentation>Earliest date time to call thecustomer.</xs:documentation>
                      </xs:annotation>
                  </xs:element>
                  <xs:element name="latestDateTimeToCall" type="xs:dateTime" minOccurs="0" maxOccurs="1"
           sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerNotification.latestDateTimeToCall">
                      <xs:annotation>
                        <xs:documentation>Latest date time to call thecustomer.</xs:documentation>
                      </xs:annotation>
                  </xs:element>
                  <xs:element name="trigger" type="m:NotificationTriggerKind" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerNotification.trigger">
                      <xs:annotation>
                        <xs:documentation>Trigger for this notification.</xs:documentation>
                      </xs:annotation>
                  </xs:element>
              </xs:sequence>
          </xs:complexType>
          <xs:complexType name="Incident" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Incident">
              <xs:annotation>
                  <xs:documentation>Description of a problem in the field that may be reported in a trouble ticket or
come from another source. It may have to do with an outage.</xs:documentation>
              </xs:annotation>
              <xs:sequence>
                  <xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                      <xs:annotation>
                        <xs:documentation>Master resource identifier issued by a model authority.
The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
                        <xs:documentation>For CIMXML data files in RDF syntax, the mRID ismapped to rdf:ID or rdf:about
attributes that identify CIM object elements.</xs:documentation>
                      </xs:annotation>
                  </xs:element>
                  <xs:element name="description" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.description">
                      <xs:annotation>
                        <xs:documentation>The description is a free human readable text describing
or naming the object. It may be non unique and may not correlate to a naming hierarchy.</xs:documentation>
                      </xs:annotation>
                  </xs:element>
                  <xs:element name="name" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.name">
                      <xs:annotation>
                        <xs:documentation>The name is any free human readable and possibly non
unique text naming the object.</xs:documentation>
                      </xs:annotation>
                  </xs:element>
              </xs:sequence>
          </xs:complexType>
          <xs:complexType name="IncidentHazard"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#IncidentHazard">
              <xs:annotation>
```

```
                    <xs:documentation>Hazardous situation associated with an incident. Examples are line down,
gas leak, fire, etc.</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                 <xs:element name="mRID" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                    <xs:annotation>
                        <xs:documentation>Master resource identifier issued by a model authority.
The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
                        <xs:documentation>For CIMXML data files in RDF syntax, the mRID is
mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
                    </xs:annotation>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
    <xs:simpleType name="NotificationTriggerKind"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#NotificationTriggerKind">
                        <xs:annotation>
                <xs:documentation>Kind of trigger to notify customer.</xs:documentation>
            </xs:annotation>
            <xs:restriction base="xs:string">
                <xs:enumeration value="etrChange">
                    <xs:annotation>
                        <xs:documentation>Notify customer if estimated restoration time
changes.</xs:documentation>
                    </xs:annotation>
                </xs:enumeration>
                <xs:enumeration value="informDispatched">
                    <xs:annotation>
                        <xs:documentation>Notify customer that a crew has been dispatched to
investigate the problem.</xs:documentation>
                        </xs:annotation>
                </xs:enumeration>
                <xs:enumeration value="initialEtr">
                    <xs:annotation>
                        <xs:documentation>Notify customer for the first time that estimated restoration time is
available.</xs:documentation>
                    </xs:annotation>
                </xs:enumeration>
                <xs:enumeration value="powerOut">
                    <xs:annotation>
                        <xs:documentation>Notify customer of planned outage.</xs:documentation>
                    </xs:annotation>
                </xs:enumeration>
                <xs:enumeration value="powerRestored">
                    <xs:annotation>
                        <xs:documentation>Notify customer when power has been
restored.</xs:documentation>
                    </xs:annotation>
                </xs:enumeration>
            </xs:restriction>
        </xs:simpleType>
    <xs:simpleType name="TroubleReportingKind"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#TroubleReportingKind">
            <xs:annotation>
                <xs:documentation>Kind of trouble reporting.</xs:documentation>
            </xs:annotation>
            <xs:restriction base="xs:string">
                <xs:enumeration value="call">
                    <xs:annotation>
                        <xs:documentation>Trouble call received by customer service
representative.</xs:documentation>
                    </xs:annotation>
```

```
                        </xs:enumeration>
                        <xs:enumeration value="email">
                            <xs:annotation>
                                <xs:documentation>Trouble reported by email.</xs:documentation>
                            </xs:annotation>
                        </xs:enumeration>
                        <xs:enumeration value="ivr">
                            <xs:annotation>
                                <xs:documentation>Trouble reported through interactive voice response
system.</xs:documentation>
                            </xs:annotation>
                        </xs:enumeration>
                        <xs:enumeration value="letter">
                            <xs:annotation>
                                <xs:documentation>Trouble reported by letter.</xs:documentation>
                            </xs:annotation>
                        </xs:enumeration>
                        <xs:enumeration value="other">
                            <xs:annotation>
                                <xs:documentation>Trouble reported by other means.</xs:documentation>
                            </xs:annotation>
                        </xs:enumeration>
                    </xs:restriction>
                </xs:simpleType>
        <xs:complexType name="TroubleTicket" awsdl:modelReference="http://iec.ch/TC57/CIM
generic#TroubleTicket">
                <xs:annotation/>
                <xs:sequence>
                    <xs:element name="mRID" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                        <xs:annotation>
                            <xs:documentation>Master resource identifier issued by a model authority.
The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
                            <xs:documentation>For CIMXML data files in RDF syntax, the mRID is
mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                    <xs:element name="authorName" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Document.authorName">
                        <xs:annotation>
                            <xs:documentation>Name of the author of this document.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                    <xs:element name="dateTimeOfReport" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#TroubleTicket.dateTimeOfReport">
                        <xs:annotation>
                            <xs:documentation>Date and time the trouble has been
reported.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                    <xs:element name="description" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.description">
                        <xs:annotation>
                            <xs:documentation>The description is a free human readable text describing
or naming the object. It may be non unique and may not correlate to a naming hierarchy.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                    <xs:element name="firstResponder" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#TroubleTicket.firstResponder">
                        <xs:annotation>
                            <xs:documentation>A first responder on site such as police, fire department
```

```
etc.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                    <xs:element name="reportingKind" type="m:TroubleReportingKind" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#TroubleTicket.reportingKind">
            <xs:annotation>
                        <xs:documentation>Indicates how the customer reported trouble.</xs:documentation>
                            </xs:annotation>
                    </xs:element>
                    <xs:element name="resolvedDateTime" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#TroubleTicket.resolvedDateTime">
        <xs:annotation>
                        <xs:documentation>Date and time this trouble ticket has been
resolved.</xs:documentation>
                            </xs:annotation>
                    </xs:element>
                    <xs:element name="troubleCode" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#TroubleTicket.troubleCode">
        <xs:annotation>
                        <xs:documentation>Trouble code (e.g., power down, flickering lights, partial
power, etc).</xs:documentation>
                            <xs:annotation>
                    </xs:element>
                    <xs:element name="Customer" type="m:Customer" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#TroubleTicket.Customer">
                        <xs:annotation>
                            <xs:documentation>Customer for whom this trouble ticket is
relevant.</xs:documentation>
                            </xs:annotation>
                    </xs:element>
                    <xs:element name="Hazards" type="m:IncidentHazard" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#TroubleTicket.Hazards">
                        <xs:annotation>
                            <xs:documentation>All hazards reported with this trouble ticket.</xs:documentation>
                            </xs:annotation>
                    </xs:element>
                    <xs:element name="Notification" type="m:CustomerNotification" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#TroubleTicket.Notification">
                        <xs:annotation>
                            <xs:documentation>Notification for this trouble ticket.</xs:documentation>
            </xs:annotation>
                    </xs:element>
            </xs:sequence>
        </xs:complexType>
</xs:schema>
```

圖 A.1 障礙單 XSD

Figure A.1 – Trouble ticket XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:a="http://langdale.com.au/2005/Message#"
xmlns:sawsdl="http://www.w3.org/ns/sawsdl" xmlns="http://langdale.com.au/2005/Message#"
xmlns:m="http://iec.ch/TC57/2014/IncidentInformation/1#"
targetNamespace="http://iec.ch/TC57/2014/IncidentInformation/1#"elementFormDefault="qualified"
attributeFormDefault="unqualified">
    <xs:annotation>
        <xs:documentation/>
    </xs:annotation>
    <xs:element name="IncidentInformation" type="m:IncidentInformation"/>
    <xs:complexType name="IncidentInformation">
        <xs:sequence>
  <xs:element name="Incident" type="m:Incident" minOccurs="0" maxOccurs="unbounded"/>     <xs:element
name="IncidentHazard" type="m:IncidentHazard" minOccurs="0" maxOccurs="unbounded"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexTypename="CustomerNotification"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#CustomerNotification">
        <xs:annotation>
            <xs:documentation>Conditions for notifying the customer about the changes in the status of their
service (e.g., outage restore, estimated restoration time, tariff or service level change, etc.)</xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element name="contactType" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerNotification.contactType">
                <xs:annotation>
                    <xs:documentation>Type of contact (e.g., phone, email, etc.).</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="contactValue" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerNotification.contactValue">
                <xs:annotation>
                    <xs:documentation>Value of contact type (e.g., phone number, email address,
etc.).</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="earliestDateTimeToCall" type="xs:dateTime" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerNotification.earliestDateTimeToCall">
                <xs:annotation>
                    <xs:documentation>Earliest date time to call the customer.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="latestDateTimeToCall" type="xs:dateTime" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerNotification.latestDateTimeToCall">
                <xs:annotation>
                    <xs:documentation>Latest date time to call the customer.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="trigger" type="m:NotificationTriggerKind" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerNotification.trigger">
                <xs:annotation>
                    <xs:documentation>Trigger for this notification.</xs:documentation>
                </xs:annotation>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="Incident" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Incident">
```

```
<xs:annotation>
    <xs:documentation>Description of a problem in the field that may be reported in a trouble ticket or come
from another source. It may have to do with an outage.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="mRID" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
            <xs:annotation>
                <xs:documentation>Master resource identifier issued by a model authority.
The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
                <xs:documentation>For CIMXML data files in RDF syntax, the mRID is
mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="cause" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Incident.cause">
            <xs:annotation>
                <xs:documentation>Cause of this incident.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="description" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.description">
            <xs:annotation>
                <xs:documentation>The description is a free human readable text describing
or naming the object. It may be non unique and may not correlate to a naming hierarchy.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="name" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.name">
            <xs:annotation>
                <xs:documentation>The name is any free human readable and possibly non unique text
naming the object.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="CustomerNotifications" type="m:CustomerNotification" minOccurs="0"
maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Incident.CustomerNotifications">
            <xs:annotation>
                <xs:documentation>All notifications for a customer related to the status change of this
incident.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="Hazards" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Incident.Hazards">
            <xs:annotation>
                <xs:documentation>All hazards associated with this incident.</xs:documentation>
            </xs:annotation>
            <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#IncidentHazard">
                <xs:attribute name="ref" type="xs:string"/>
            </xs:complexType>
        </xs:element>
        <xs:element name="Outage" type="m:Outage" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Incident.Outage">
            <xs:annotation>
                <xs:documentation>Outage for this incident.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="status" type="m:Status" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Document.status">
            <xs:annotation>
```

```
                    <xs:documentation>Status of subject matter (e.g., Agreement, Work) this
document represents. For status of the document itself, use 'docStatus' attribute.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="TroubleTickets" type="m:TroubleTicket" minOccurs="0"
maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Incident.TroubleTickets">
                <xs:annotation>
                    <xs:documentation>All trouble tickets reporting this incident.</xs:documentation>
                </xs:annotation>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:complexTypename="IncidentHazard" sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#IncidentHazard">
        <xs:annotation>
            <xs:documentation>Hazardous situation associated with an incident. Examples are line down, gas leak,
fire, etc.</xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element name="mRID" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                <xs:annotation>
                    <xs:documentation>Master resource identifier issued by a model authority.
The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
                    <xs:documentation>For CIMXML data files in RDF syntax, the mRID is
mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="description" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.description">
                <xs:annotation>
                    <xs:documentation>The description is a free human readable text describing
or naming the object. It may be non unique and may not correlate to a naming hierarchy.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="name" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.name">
                <xs:annotation>
                    <xs:documentation>The name is any free human readable and possibly non unique text
naming the object.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="status" type="m:Status" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Hazard.status">
                <xs:annotation>
                    <xs:documentation>Status of this hazard.</xs:documentation>
                </xs:annotation>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:simpleTypename="NotificationTriggerKind"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#NotificationTriggerKind">
        <xs:annotation>
            <xs:documentation>Kind of trigger to notify customer.</xs:documentation>
        </xs:annotation>
        <xs:restriction base="xs:string">
            <xs:enumeration value="etrChange">
                <xs:annotation>
                    <xs:documentation>Notify customer if estimated restoration time
changes.</xs:documentation>
```

```xml
                        </xs:annotation>
                    </xs:enumeration>
                    <xs:enumeration value="informDispatched">
                        <xs:annotation>
                            <xs:documentation>Notify customer that a crew has been dispatched to investigate the
problem.</xs:documentation>
                        </xs:annotation>
                    </xs:enumeration>
                    <xs:enumeration value="initialEtr">
                        <xs:annotation>
                            <xs:documentation>Notify customer for the first time that estimated restoration time is
available.</xs:documentation>
                        </xs:annotation>
                    </xs:enumeration>
                    <xs:enumeration value="powerOut">
                        <xs:annotation>
                            <xs:documentation>Notify customer of planned outage.</xs:documentation>
                        </xs:annotation>
                    </xs:enumeration>
                    <xs:enumeration value="powerRestored">
                        <xs:annotation>
                            <xs:documentation>Notify customer when power has been restored.</xs:documentation>
                        </xs:annotation>
                    </xs:enumeration>
                </xs:restriction>
            </xs:simpleType>
            <xs:complexType name="Outage" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Outage">
                <xs:annotation>
                    <xs:documentation>Document describing details of an active or planned outage in a part of the electrical
network.</xs:documentation>
                    <xs:documentation>A non-planned outage may be created upon:</xs:documentation>
                    <xs:documentation>- a breaker trip,</xs:documentation>
                    <xs:documentation>- a fault indicator status change,</xs:documentation>
                    <xs:documentation>- a meter event indicating customer outage,</xs:documentation>
                    <xs:documentation>- a reception of one or more customer trouble calls, or</xs:documentation>
                    <xs:documentation>- an operator command, reflecting information obtained from the field
crew.</xs:documentation>
                    <xs:documentation>Outage restoration may be performed using a switching plan which complements the
outage information with detailed switching activities, including the relationship to the crew and work.</xs:documentation>
                    <xs:documentation>A planned outage may be created upon:</xs:documentation>
                    <xs:documentation>- a request for service, maintenance or construction work in the field,
or</xs:documentation>
                    <xs:documentation>- an operator-defined outage for what-if/contingency network
analysis.</xs:documentation>
                </xs:annotation>
                <xs:sequence>
                    <xs:element name="mRID" type="xs:string" minOccurs="1" maxOccurs="1"
                    sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                        <xs:annotation>
                            <xs:documentation>Master resource identifier issued by a model authority.
The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
                            <xs:documentation>For CIMXML data files in RDF syntax, the mRID is
mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                </xs:sequence>
            </xs:complexType>
            <xs:complexType name="Status" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status">
                <xs:annotation>
```

```xml
                    <xs:documentation>Current status information relevant to an entity.</xs:documentation>
                </xs:annotation>
                <xs:sequence>
                    <xs:element name="dateTime" type="xs:dateTime" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.dateTime">
                        <xs:annotation>
                            <xs:documentation>Date and time for which status 'value' applies.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                    <xs:element name="reason" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.reason">
                        <xs:annotation>
                            <xs:documentation>Reason code or explanation for why an object went to the current status
'value'.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                    <xs:element name="remark" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.remark">
                        <xs:annotation>
                            <xs:documentation>Pertinent information regarding the current 'value', as free form
text.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                    <xs:element name="value" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.value">
                        <xs:annotation>
                            <xs:documentation>Status value at 'dateTime'; prior status changes may
have been kept in instances of activity records associated with the object to which this status applies.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                </xs:sequence>
            </xs:complexType>
        <xs:complexType name="TroubleTicket" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#TroubleTicket">
            <xs:annotation/>
            <xs:sequence>
                <xs:element name="mRID" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                    <xs:annotation>
                        <xs:documentation>Master resource identifier issued by a model authority.
The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
                        <xs:documentation>For CIMXML data files in RDF syntax, the mRID is
mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
                    </xs:annotation>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
</xs:schema>
```

圖 A.2 事故資訊 XSD

Figure A.2 – Incident information XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:a="http://langdale.com.au/2005/Message#"
xmlns:sawsdl="http://www.w3.org/ns/sawsdl" xmlns="http://langdale.com.au/2005/Message#"
xmlns:m="http://iec.ch/TC57/2011/CustomerAgreementConfig#"
targetNamespace="http://iec.ch/TC57/2011/CustomerAgreementConfig#" elementFormDefault="qualified"
attributeFormDefault="unqualified">
    <xs:annotation/>
    <xs:element name="CustomerAgreementConfig" type="m:CustomerAgreementConfig"/>
    <xs:complexType name="CustomerAgreementConfig">
        <xs:sequence>
            <xs:element name="CustomerAgreement" type="m:CustomerAgreement" minOccurs="0"
maxOccurs="unbounded"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ConfigurationEvent"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#ConfigurationEvent">
        <xs:annotation>
            <xs:documentation>Used to report details on creation, change or deletion of an entity or its
configuration.</xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                <xs:annotation>
                    <xs:documentation>A Model Authority issues mRIDs. Given that each Model Authority has a
unique id and this id is part of the mRID, then the mRID is globally unique.</xs:documentation>
                    <xs:documentation>Global uniqeness is achived by using a UUID for the mRID. It is
strongly recommended to do this.</xs:documentation>
                    <xs:documentation>For CIMXML data files the mRID is mapped to rdf:ID or rdf:about
attributes that identifies CIM object elements.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="createdDateTime" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ActivityRecord.createdDateTime">
                <xs:annotation>
                    <xs:documentation>Date and time this activity record has been created
(different from the 'status.dateTime', which is the time of a status change of the associated object, if
applicable).</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="effectiveDateTime" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ConfigurationEvent.effectiveDateTime">
                <xs:annotation>
                    <xs:documentation>Date and time this event has or will become
effective.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="modifiedBy" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ConfigurationEvent.modifiedBy">
                <xs:annotation>
                    <xs:documentation>Source/initiator of modification.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="reason" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ActivityRecord.reason">
                <xs:annotation>
                    <xs:documentation>Reason for event resulting in this activity record, typically supplied when
user initiated.</xs:documentation>
                </xs:annotation>
```

```
                </xs:element>
                <xs:element name="remark" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ConfigurationEvent.remark">
                    <xs:annotation>
                        <xs:documentation>Free text remarks.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="severity" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ActivityRecord.severity">
                    <xs:annotation>
                        <xs:documentation>Severity level of event resulting in this activity
record.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="type" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ActivityRecord.type">
                    <xs:annotation>
                        <xs:documentation>Type of event resulting in this activity record.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="Names" type="m:Name" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.Names">
                    <xs:annotation>
                        <xs:documentation>All names of this identified object.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="status" type="m:Status" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ActivityRecord.status">
                    <xs:annotation>
                        <xs:documentation>Information on consequence of event resulting in this activity
record.</xs:documentation>
                    </xs:annotation>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
        <xs:complexType name="Customer" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Customer">
            <xs:annotation>
                <xs:documentation>Organisation receiving services from service supplier.</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                <xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                    <xs:annotation>
                        <xs:documentation>A Model Authority issues mRIDs. Given that each Model
Authority has a unique id and this id is part of the mRID, then the mRID is globally unique.</xs:documentation>
                        <xs:documentation>Global uniqeness is easily achived by using a UUID for the mRID. It is
strongly recommended to do this.</xs:documentation>
                        <xs:documentation>For CIMXML data files the mRID is mapped to rdf:ID or rdf:about
attributes that identifies CIM object elements.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="Names" type="m:Name" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.Names">
                    <xs:annotation>
                        <xs:documentation>All names of this identified object.</xs:documentation>
                    </xs:annotation>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
```

```
              <xs:complexType name="CustomerAccount"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#CustomerAccount">
                      <xs:annotation>
                              <xs:documentation>Assignment of a group of products and services purchased by the customer
through a customer agreement, used as a mechanism for customer billing and payment. It contains common information
from the various types of customer agreements to create billings (invoices) for a customer and receive
payment.</xs:documentation>
                      </xs:annotation>
                      <xs:sequence>
                              <xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                                      <xs:annotation>
                                              <xs:documentation>A Model Authority issues mRIDs. Given that each Model
Authority has a unique id and this id is part of the mRID, then the mRID is globally unique.</xs:documentation>
                                              <xs:documentation>Global uniqeness is easily achived by using a UUID for the mRID. It is
strongly recommended to do this.</xs:documentation>
                                              <xs:documentation>For CIMXML data files the mRID is mapped to rdf:ID or rdf:about
attributes that identifies CIM object elements.</xs:documentation>
                                      </xs:annotation>
                              </xs:element>
                              <xs:element name="Names" type="m:Name" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.Names">
                                      <xs:annotation>
                                              <xs:documentation>All names of this identified object.</xs:documentation>
                                      </xs:annotation>
                              </xs:element>
                      </xs:sequence>
              </xs:complexType>
              <xs:complexType name="CustomerAgreement"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#CustomerAgreement">
                      <xs:annotation>
                              <xs:documentation>Agreement between the customer and the service supplier to pay for service
at a specific service location. It records 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.</xs:documentation> </xs:annotation>
                              <xs:sequence>
                                   <xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                                      <xs:annotation>
                                              <xs:documentation>A Model Authority issues mRIDs. Given that each Model
Authority has a unique id and this id is part of the mRID, then the mRID is globally unique.</xs:documentation>
                                              <xs:documentation>Global uniqeness is easily achived by using a UUID for the mRID. It is
strongly recommended to do this.</xs:documentation>
                                              <xs:documentation>For CIMXML data files the mRID is mapped to rdf:ID or rdf:about
attributes that identifies CIM object elements.</xs:documentation>
                                      </xs:annotation>
                              </xs:element>
                              <xs:element name="createdDateTime" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Document.createdDateTime">
                                      <xs:annotation>
                                               <xs:documentation>Date and time that this document was created.</xs:documentation>
                                      </xs:annotation>
                              </xs:element>
                              <xs:element name="lastModifiedDateTime" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Document.lastModifiedDateTime">
                                      <xs:annotation>
                                              <xs:documentation>Date and time this document was last modified.
Documents may potentially be modified many times during their lifetime.</xs:documentation>
                                      </xs:annotation>
                              </xs:element>
```

```
<xs:element name="loadMgmt" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerAgreement.loadMgmt">
            <xs:annotation>
                <xs:documentation>Load management code.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="revisionNumber" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Document.revisionNumber">
            <xs:annotation>
                <xs:documentation>Revision number for this document.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="signDate" type="xs:date" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Agreement.signDate">
            <xs:annotation>
                <xs:documentation>Date this agreement was consummated among associated persons
and/or organisations.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="subject" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Document.subject">
            <xs:annotation>
                <xs:documentation>Document subject.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="title" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Document.title">
            <xs:annotation>
                <xs:documentation>Document title.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="type" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Document.type">
            <xs:annotation>
                <xs:documentation>Utility-specific classification of this document, according
to their corporate standards, practices, and existing IT systems (e.g., for management of assets, maintenance, work,
outage, customers, etc.).</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="ConfigurationEvents" type="m:ConfigurationEvent" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Document.ConfigurationEvents">
            <xs:annotation>
                <xs:documentation>All configuration events created for this document.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="DemandResponsePrograms" type="m:DemandResponseProgram"
minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#CustomerAgreement.DemandResponsePrograms">
            <xs:annotation>
                <xs:documentation>All demand response programs the customer is enrolled in through this
customer agreement.</xs:documentation>
        </xs:annotation>
        </xs:element>
        <xs:element name="docStatus" type="m:Status" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Document.docStatus">
            <xs:annotation>
                <xs:documentation>Status of this document. For status of subject matter this document
represents (e.g., Agreement, Work), use 'status' attribute.</xs:documentation>
                <xs:documentation>Example values for 'docStatus.status' are draft, approved, cancelled,
```

etc.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="Names" type="m:Name" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.Names">
                    <xs:annotation>
                        <xs:documentation>All names of this identified object.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="ServiceCategory" type="m:ServiceCategory" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerAgreement.ServiceCategory">
                    <xs:annotation>
                        <xs:documentation>Service category for this agreement.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="status" type="m:Status" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Document.status">
                    <xs:annotation>
                        <xs:documentation>Status of subject matter (e.g., Agreement, Work) this
document represents. For status of the document itself, use 'docStatus' attribute.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="validityInterval" type="m:DateTimeInterval" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Agreement.validityInterval">
                    <xs:annotation>
                        <xs:documentation>Date and time interval this agreement is valid (from going into effect to
termination).</xs:documentation>
                    </xs:annotation>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
        <xs:complexType name="DateTimeInterval"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#DateTimeInterval">
            <xs:annotation>
                <xs:documentation>Interval of date and time.</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                <xs:element name="end" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#DateTimeInterval.end">
                    <xs:annotation>
                        <xs:documentation>End date and time of this interval.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="start" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#DateTimeInterval.start">
                    <xs:annotation>
                        <xs:documentation>Start date and time of this interval.</xs:documentation>
                    </xs:annotation>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
        <xs:complexType name="DemandResponseProgram"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#DemandResponseProgram">
            <xs:annotation>
                <xs:documentation>Demand response program.</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                <xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">

```
                    <xs:annotation>
                        <xs:documentation>A Model Authority issues mRIDs. Given that each Model
Authority has a unique id and this id is part of the mRID, then the mRID is globally unique.</xs:documentation>
                        <xs:documentation>Global uniqeness is easily achived by using a UUID for the mRID. It is
strongly recommended to do this.</xs:documentation>
                        <xs:documentation>For CIMXML data files the mRID is mapped to rdf:ID or rdf:about
attributes that identifies CIM object elements.</xs:documentation>
                    </xs:annotation>
                    </xs:element>
                    <xs:element name="Names" type="m:Name" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.Names">
                    <xs:annotation>
                        <xs:documentation>All names of this identified object.</xs:documentation>
                    </xs:annotation>
                    </xs:element>
                </xs:sequence>
            </xs:complexType>
            <xs:complexType name="Name" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Name">
                <xs:annotation>
                    <xs:documentation>The Name class provides the means to define any number of human
readable    names for an object. A name is &lt;b&gt;not&lt;/b&gt; to be used for defining inter-object relationships. For inter-
object relationships instead use the object identification 'mRID'.</xs:documentation>
                </xs:annotation>
                <xs:sequence>
                    <xs:element name="name" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Name.name">
                    <xs:annotation>
                        <xs:documentation>Any free text that name the object.</xs:documentation>
                    </xs:annotation>
                    </xs:element>
                    <xs:element name="NameType" type="m:NameType" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Name.NameType">
                    <xs:annotation>
                        <xs:documentation>Type of this name.</xs:documentation>
                    </xs:annotation>
                    </xs:element>
                </xs:sequence>
            </xs:complexType>
            <xs:complexType name="NameType" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#NameType">
                <xs:annotation>
                    <xs:documentation>Type of name. Possible values for attribute 'name' are implementation
dependent but standard profiles may specify types. An enterprise may have multiple IT systems each having its own local
name for the same object, e.g. a planning system may have different names from an EMS. An object may also have
different names within the same IT system, e.g. localName and aliasName as defined in CIM version 14. Their definitions
from CIM14 are</xs:documentation>
                    <xs:documentation>The localName is a human readable name of the object. It is only used with
objects organized in a naming hierarchy. localName: A free text name local to a node in a naming hierarchy similar to a file
directory structure. A power system related naming hierarchy may be: Substation, VoltageLevel, Equipment etc. Children of
the same parent in such a hierarchy have names that typically are unique among them.</xs:documentation>
                    <xs:documentation>aliasName: A free text alternate name typically used in tabular reports where the
column width is limited.</xs:documentation>
                </xs:annotation>
                <xs:sequence>
                    <xs:element name="description" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#NameType.description">
                    <xs:annotation>
                        <xs:documentation>Description of the name type.</xs:documentation>
                    </xs:annotation>
                    </xs:element>
```

```
            <xs:element name="name" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#NameType.name">
                    <xs:annotation>
                            <xs:documentation>Name of the name type.</xs:documentation>
                    </xs:annotation>
            </xs:element>
            <xs:element name="NameTypeAuthority" type="m:NameTypeAuthority" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#NameType.NameTypeAuthority">
                    <xs:annotation>
                            <xs:documentation>Authority responsible for managing names of this
type.</xs:documentation>
                    </xs:annotation>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="NameTypeAuthority"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#NameTypeAuthority">
            <xs:annotation>
                    <xs:documentation>Authority responsible for creation and management of names of a given type;
typically an organization or an enterprise system.</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                    <xs:element name="description" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#NameTypeAuthority.description">
                            <xs:annotation>
                                    <xs:documentation>Description of the name type authority.</xs:documentation>
                            </xs:annotation>
                    </xs:element>
                    <xs:element name="name" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#NameTypeAuthority.name">
                            <xs:annotation>
                                    <xs:documentation>Name of the name type authority.</xs:documentation>
                            </xs:annotation>
                    </xs:element>
            </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ServiceCategory"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#ServiceCategory">
            <xs:annotation>
                    <xs:documentation>Category of service provided to the customer.</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                    <xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                            <xs:annotation>
                                    <xs:documentation>A Model Authority issues mRIDs. Given that each Model
Authority has a unique id and this id is part of the mRID, then the mRID is globally unique.</xs:documentation>
                                    <xs:documentation>Global uniqeness is easily achived by using a UUID for the mRID. It is
strongly recommended to do this.</xs:documentation>
                                    <xs:documentation>For CIMXML data files the mRID is mapped to rdf:ID or rdf:about
attributes that identifies CIM object elements.</xs:documentation>
                            </xs:annotation>
                    </xs:element>
                    <xs:element name="kind" type="m:ServiceKind" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ServiceCategory.kind">
                            <xs:annotation>
                                    <xs:documentation>Kind of service.</xs:documentation>
                            </xs:annotation>
                    </xs:element>
```

```
<xs:element name="Names" type="m:Name" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.Names">
        <xs:annotation>
                <xs:documentation>All names of this identified object.</xs:documentation>
        </xs:annotation>
</xs:element>
    </xs:sequence>
</xs:complexType>
<xs:simpleType name="ServiceKind" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ServiceKind">
    <xs:annotation>
        <xs:documentation>Kind of service.</xs:documentation>
    </xs:annotation>
    <xs:restriction base="xs:string">
        <xs:enumeration value="electricity">
            <xs:annotation>
                <xs:documentation>Electricity service.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="gas">
            <xs:annotation>
                <xs:documentation>Gas service.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="heat">
            <xs:annotation>
                <xs:documentation>Heat service.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="internet">
            <xs:annotation>
                <xs:documentation>Internet service.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="other">
            <xs:annotation>
                <xs:documentation>Other kind of service.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="rates">
            <xs:annotation>
                <xs:documentation>Rates (e.g. tax, charge, toll, duty, tariff, etc.) service.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="refuse">
            <xs:annotation>
                <xs:documentation>Refuse (waster) service.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="sewerage">
            <xs:annotation>
                <xs:documentation>Sewerage service.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="time">
            <xs:annotation>
                <xs:documentation>Time service.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="tvLicence">
```

```
                    <xs:annotation>
                        <xs:documentation>TV license service.</xs:documentation>
                    </xs:annotation>
                </xs:enumeration>
                <xs:enumeration value="water">
                    <xs:annotation>
                        <xs:documentation>Water service.</xs:documentation>
                    </xs:annotation>
                </xs:enumeration>
            </xs:restriction>
        </xs:simpleType>
        <xs:complexType name="Status" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status">
            <xs:annotation>
                <xs:documentation>Current status information relevant to an entity.</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                <xs:element name="dateTime" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.dateTime">
                    <xs:annotation>
                        <xs:documentation>Date and time for which status 'value' applies.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="reason" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.reason">
                    <xs:annotation>
                        <xs:documentation>Reason code or explanation for why an object went to the current status
'value'.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="remark" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.remark">
                    <xs:annotation>
                        <xs:documentation>Pertinent information regarding the current 'value', as free form
text.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="value" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.value">
                    <xs:annotation>
                        <xs:documentation>Status value at 'dateTime'; prior status changes may
have been kept in instances of activity records associated with the object to which this status applies.</xs:documentation>
                    </xs:annotation>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
</xs:schema>
```

圖 A.3　用 戶 協 議 XSD

Figure A.3 – Customer agreement XSD

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:a="http://langdale.com.au/2005/Message#"
xmlns:sawsdl="http://www.w3.org/ns/sawsdl" xmlns="http://langdale.com.au/2005/Message#"
xmlns:m="http://iec.ch/TC57/2014/ServiceRequests#" targetNamespace="http://iec.ch/TC57/2014/ServiceRequests#"
elementFormDefault="qualified" attributeFormDefault="unqualified">
    <xs:annotation>
        <xs:documentation/>
    </xs:annotation>
    <xs:element name="ServiceRequests" type="m:ServiceRequests"/>
    <xs:complexType name="ServiceRequests">
        <xs:sequence>
            <xs:element name="ActivityRecord" type="m:ActivityRecord" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="Customer" type="m:Customer" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="Meter" type="m:Meter" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="WorkTask" type="m:WorkTask" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element name="WorkTimeSchedule" type="m:WorkTimeSchedule" minOccurs="0"
maxOccurs="unbounded"/>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ActivityRecord" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ActivityRecord">
        <xs:annotation>
            <xs:documentation>Records activity for an entity at a point in time; activity may be for an event that has
already occurred or for a planned activity.</xs:documentation>
        </xs:annotation>
        <xs:sequence>
            <xs:element name="createdDateTime" type="xs:dateTime" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ActivityRecord.createdDateTime">
                <xs:annotation>
                    <xs:documentation>Date and time this activity record has been created (different from the
'status.dateTime', which is the time of a status change of the associated object, if applicable).</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="reason" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ActivityRecord.reason">
                <xs:annotation>
                    <xs:documentation>Reason for event resulting in this activity record, typically supplied when
user initiated.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="severity" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ActivityRecord.severity">
                <xs:annotation>
                    <xs:documentation>Severity level of event resulting in this activity
record.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="type" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ActivityRecord.type">
                <xs:annotation>
                    <xs:documentation>Type of event resulting in this activity record.</xs:documentation>
                </xs:annotation>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="Customer" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Customer">
        <xs:annotation>
            <xs:documentation>Organisation receiving services from service supplier.</xs:documentation>
        </xs:annotation>
        <xs:sequence>
```

```xml
<xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
    <xs:annotation>
        <xs:documentation>Master resource identifier issued by a model authority.
The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
        <xs:documentation>For CIMXML data files in RDF syntax, the mRID is
mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="kind" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Customer.kind">
    <xs:annotation>
        <xs:documentation>Kind of customer.</xs:documentation>
    </xs:annotation>
    <xs:simpleType sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerKind">
    <xs:restriction base="xs:string">
        <xs:enumeration value="commercialIndustrial">
            <xs:annotation>
                <xs:documentation>Commercial industrial customer.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="energyServiceScheduler">
            <xs:annotation>
                <xs:documentation>Customer as energy service
scheduler.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="energyServiceSupplier">
            <xs:annotation>
                <xs:documentation>Customer as energy service
supplier.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="internalUse">
            <xs:annotation>
                <xs:documentation>Internal use customer.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="other">
            <xs:annotation>
                <xs:documentation>Other kind of customer.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="pumpingLoad">
            <xs:annotation>
                <xs:documentation>Pumping load customer.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="residential">
            <xs:annotation>
                <xs:documentation>Residential customer.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="residentialAndCommercial">
            <xs:annotation>
                <xs:documentation>Residential and commercial
customer.</xs:documentation>
            </xs:annotation>
        </xs:enumeration>
```

```xml
                              <xs:enumeration value="residentialAndStreetlight">
                                  <xs:annotation>
                                      <xs:documentation>Residential and streetlight
customer.</xs:documentation>
                                  </xs:annotation>
                              </xs:enumeration>
                              <xs:enumeration value="residentialFarmService">
                                  <xs:annotation>
                                      <xs:documentation>Residential farm service customer.</xs:documentation>
                                  </xs:annotation>
                              </xs:enumeration>
                              <xs:enumeration value="residentialStreetlightOthers">
                                  <xs:annotation>
                                      <xs:documentation>Residential streetlight or other related
customer.</xs:documentation>
                                  </xs:annotation>
                              </xs:enumeration>
                              <xs:enumeration value="windMachine">
                                  <xs:annotation>
                                      <xs:documentation>Wind machine customer.</xs:documentation>
                                  </xs:annotation>
                              </xs:enumeration>
                          </xs:restriction>
                      </xs:simpleType>
                  </xs:element>
                  <xs:element name="pucNumber" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Customer.pucNumber">
                      <xs:annotation>
                          <xs:documentation>(if applicable) Public utilities commission (PUC) identification
number.</xs:documentation>
                      </xs:annotation>
                  </xs:element>
                  <xs:element name="specialNeed" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Customer.specialNeed">
                      <xs:annotation>
                          <xs:documentation>True if customer organisation has special service needs such as life
support, hospitals, etc.</xs:documentation>
                      </xs:annotation>
                  </xs:element>
                  <xs:element name="vip" type="xs:boolean" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Customer.vip">
                      <xs:annotation>
                          <xs:documentation>(use 'priority' instead) True if this is an important
customer. Importance is for matters different than those in 'specialNeed' attribute.</xs:documentation>
                      </xs:annotation>
                  </xs:element>
                  <xs:element name="CustomerAgreements" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Customer.CustomerAgreements">
                      <xs:annotation>
                          <xs:documentation>All agreements of this customer.</xs:documentation>
                      </xs:annotation>
    <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#CustomerAgreement">
                          <xs:sequence>
                              <xs:element name="mRID" type="xs:string" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                                  <xs:annotation>
                                      <xs:documentation>Master resource identifier
issued by a model authority. The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally
unique.</xs:documentation>
```

<xs:documentation>For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="Names" type="m:Name" minOccurs="0" maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.Names">
<xs:annotation>
<xs:documentation>All names of this identified object.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="UsagePoints" minOccurs="0" maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CustomerAgreement.UsagePoints">
<xs:annotation>
<xs:documentation>All service delivery points regulated by this customer agreement.</xs:documentation>
</xs:annotation>
<xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#UsagePoint">
<xs:sequence>
<xs:element name="checkBilling" type="xs:boolean" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#UsagePoint.checkBilling">
<xs:annotation>
<xs:documentation>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.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="grounded" type="xs:boolean" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#UsagePoint.grounded">
<xs:annotation>
<xs:documentation>True if grounded.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="isVirtual" type="xs:boolean" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#UsagePoint.isVirtual">
<xs:annotation>
<xs:documentation>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.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="phaseCode" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#UsagePoint.phaseCode">
<xs:annotation>
<xs:documentation>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.</xs:documentation>
</xs:annotation>
<xs:simpleType sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#PhaseCode">
<xs:restriction base="xs:string">
<xs:enumeration value="A">
<xs:annotation>
<xs:documentation>Phase A.</xs:documentation>
</xs:annotation>
</xs:enumeration>

```
<xs:enumeration value="AB">
<xs:annotation>
        <xs:documentation>Phases A and B.</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="ABC">
<xs:annotation>
        <xs:documentation>Phases A, B, and C.</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="ABCN">
<xs:annotation>
        <xs:documentation>Phases A, B, C, and N.</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="ABN">
<xs:annotation>
        <xs:documentation>Phases A, B, and neutral.</xs:documentation>
        </xs:annotation>
        </xs:enumeration>
        <xs:enumeration value="AC">
        <xs:annotation>
        <xs:documentation>Phases A and C.</xs:documentation>
        </xs:annotation>
        </xs:enumeration>
<xs:enumeration value="ACN">
<xs:annotation>
        <xs:documentation>Phases A, C and neutral.</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="AN">
<xs:annotation>
        <xs:documentation>Phases A and neutral.</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="B">
<xs:annotation>
        <xs:documentation>Phase B.</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="BC">
<xs:annotation>
        <xs:documentation>Phases B and C.</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="BCN">
<xs:annotation>
        <xs:documentation>Phases B, C, and neutral.</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="BN">
<xs:annotation>
        <xs:documentation>Phases B and neutral.</xs:documentation>
</xs:annotation>
</xs:enumeration>
<xs:enumeration value="C">
<xs:annotation>
        <xs:documentation>Phase C.</xs:documentation>
</xs:annotation>
```

```xml
            </xs:enumeration>
            <xs:enumeration value="CN">
            <xs:annotation>
                        <xs:documentation>Phases C and neutral.</xs:documentation>
            </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="N">
            <xs:annotation>
                    <xs:documentation>Neutral phase.</xs:documentation>
            </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="s1">
            <xs:annotation>
                    <xs:documentation>Secondary phase 1.</xs:documentation>
            </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="s12">
            <xs:annotation>
                    <xs:documentation>Secondary phase 1 and 2.</xs:documentation>
            </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="s12N">
            <xs:annotation>
                    <xs:documentation>Secondary phases 1, 2, and neutral.</xs:documentation>
            </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="s1N">
            <xs:annotation>
                    <xs:documentation>Secondary phase 1 and neutral.</xs:documentation>
            </xs:annotation>
            </xs:enumeration>
            <xs:enumeration value="s2">
            <xs:annotation>
                    <xs:documentation>Secondary phase 2.</xs:documentation>
            </xs:annotation>
            </xs:enumeration>
                    <xs:enumeration value="s2N">
                    <xs:annotation>
                    <xs:documentation>Secondary phase 2 and neutral.</xs:documentation>
                    </xs:annotation>
                    </xs:enumeration>
                                                    </xs:restriction>
                                                </xs:simpleType>
                                            </xs:element>
                                            <xs:element
name="serviceDeliveryRemark" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#UsagePoint.serviceDeliveryRemark">
                                                <xs:annotation>
                    <xs:documentation>Remarks about this usage point, for example the reason for it being rated with a non-
nominal priority.</xs:documentation>
                                                </xs:annotation>
                                            </xs:element>
                                            <xs:element name="servicePriority"
type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#UsagePoint.servicePriority">
                                                <xs:annotation>
                                                    <xs:documentation>Priority of service for this usage
point. Note that usage points at the same service location can have different priorities.</xs:documentation>
                                                </xs:annotation>
```

```xml
        </xs:element>
        <xs:element
name="ServiceLocation" type="m:ServiceLocation" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#UsagePoint.ServiceLocation">
            <xs:annotation>
                <xs:documentation>Service location where the
service delivered by this usage point is consumed.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element
name="ServiceMultipliers" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#UsagePoint.ServiceMultipliers">
            <xs:annotation>
                <xs:documentation>All multipliers applied at
this usage point.</xs:documentation>
            </xs:annotation>
            <xs:complexType
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ServiceMultiplier">
                <xs:sequence>
  <xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
      <xs:annotation>
          <xs:documentation>Master resource identifier issued by a model authority. The mRID must semantically be a
UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
          <xs:documentation>For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or rdf:about attributes
that identify CIM object elements.</xs:documentation>
      </xs:annotation>
  </xs:element>
  <xs:element name="kind" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#ServiceMultiplier.kind">
      <xs:annotation>
          <xs:documentation>Kind of multiplier.</xs:documentation>
      </xs:annotation>
      <xs:simpleType sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ServiceMultiplierKind">
          <xs:restriction base="xs:string">
              <xs:enumeration value="ctRatio">
                  <xs:annotation>
                      <xs:documentation>Current transformer ratio used to convert associated quantities to real
measurements.</xs:documentation>
                  </xs:annotation>
              </xs:enumeration>
              <xs:enumeration value="ptRatio">
                  <xs:annotation>
                      <xs:documentation>Voltage transformer ratio used to convert associated quantities to real
measurements.</xs:documentation>
                  </xs:annotation>
              </xs:enumeration>
              <xs:enumeration value="transformerRatio">
                  <xs:annotation>
                      <xs:documentation>Product of the CT ratio and PT ratio.</xs:documentation>
                  </xs:annotation>
              </xs:enumeration>
          </xs:restriction>
      </xs:simpleType>
  </xs:element>
  <xs:element name="value" type="xs:float" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ServiceMultiplier.value">
      <xs:annotation>
          <xs:documentation>Multiplier value.</xs:documentation>
```

```
        </xs:annotation>
      </xs:element>
      <xs:element name="Names" type="m:Name" minOccurs="1" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.Names">
        <xs:annotation>
          <xs:documentation>All names of this identified object.</xs:documentation>
        </xs:annotation>
      </xs:element>
                                              </xs:sequence>
                                            </xs:complexType>
                                        </xs:element>
                                    </xs:sequence>
                                </xs:complexType>
                          </xs:element>
                      </xs:sequence>
                  </xs:complexType>
              </xs:element>
              <xs:element name="Names" type="m:Name" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.Names">
                  <xs:annotation>
                      <xs:documentation>All names of this identified object.</xs:documentation>
                  </xs:annotation>
              </xs:element>
              <xs:element name="status" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Customer.status">
                  <xs:annotation>
                      <xs:documentation>Status of this customer.</xs:documentation>
                  </xs:annotation>
                  <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status">
                      <xs:sequence>
                          <xs:element name="dateTime" type="xs:dateTime" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.dateTime">
                              <xs:annotation>
                                  <xs:documentation>Date and time for which status 'value'
applies.</xs:documentation>
                              </xs:annotation>
                          </xs:element>
                          <xs:element name="reason" type="xs:string" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.reason">
                              <xs:annotation>
                                  <xs:documentation>Reason code or explanation for why an object
went to the current status 'value'.</xs:documentation>
                              </xs:annotation>
                          </xs:element>
                          <xs:element name="remark" type="xs:string" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.remark">
                              <xs:annotation>
                                  <xs:documentation>Pertinent information regarding the current 'value',
as free form text.</xs:documentation>
                              </xs:annotation>
                          </xs:element>
                          <xs:element name="value" type="xs:string" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.value">
                              <xs:annotation>
                                  <xs:documentation>Status value at 'dateTime'; prior status changes may
have been kept in instances of activity records associated with the object to which this status applies.</xs:documentation>
                              </xs:annotation>
                          </xs:element>
                      </xs:sequence>
```

```xml
            </xs:complexType>
        </xs:element>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="IntervalReading"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#IntervalReading">
    <xs:annotation>
        <xs:documentation>Data captured at regular intervals of time. Interval data could be captured as
incremental data, absolute data, or relative data. The source for the data is usually a tariff quantity or an engineering
quantity. Data is typically captured in time-tagged, uniform, fixed-length intervals of 5 min, 10 min, 15 min, 30 min, or 60
min.</xs:documentation>
        <xs:documentation>Note: Interval Data is sometimes also called "Interval Data Readings"
(IDR).</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="reportedDateTime" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#BaseReading.reportedDateTime">
            <xs:annotation>
                <xs:documentation>(used only when there are detailed auditing
requirements) Date and time at which the reading was first delivered to the metering system.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="source" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#BaseReading.source">
            <xs:annotation>
                <xs:documentation>System that originally supplied the reading (e.g., customer, AMI system,
handheld reading system, another enterprise system, etc.).</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="timeStamp" type="xs:dateTime" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#MeasurementValue.timeStamp">
            <xs:annotation>
    <xs:documentation>The time when the value was last updated</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="value" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#BaseReading.value">
            <xs:annotation>
                <xs:documentation>Value of this reading.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="ReadingQualities" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#BaseReading.ReadingQualities">
            <xs:annotation>
                <xs:documentation>All qualities of this reading.</xs:documentation>
            </xs:annotation>
    <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#ReadingQuality">
                <xs:sequence>
                    <xs:element name="comment" type="xs:string" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ReadingQuality.comment">
                        <xs:annotation>
                            <xs:documentation>Elaboration on the quality code.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                    <xs:element name="source" type="xs:string" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ReadingQuality.source">
                        <xs:annotation>
                            <xs:documentation>System acting as the source of the quality
code.</xs:documentation>
```

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                                    </xs:annotation>
                                  </xs:element>
                                  <xs:element name="timeStamp" type="xs:dateTime"
minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ReadingQuality.timeStamp">
                                    <xs:annotation>
                                        <xs:documentation>Date and time at which the quality code was
assigned or ascertained.</xs:documentation>
                                    </xs:annotation>
                                  </xs:element>
                               </xs:sequence>
                             </xs:complexType>
                          </xs:element>
                          <xs:element name="timePeriod" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#BaseReading.timePeriod">
                             <xs:annotation>
                                <xs:documentation>Start and end of the period for those readings whose type has a time
attribute such as 'billing', seasonal' or 'forTheSpecifiedPeriod'.</xs:documentation>
                             </xs:annotation>
        <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#DateTimeInterval">
                                <xs:sequence>
                                   <xs:element name="end" type="xs:dateTime" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#DateTimeInterval.end">
                                      <xs:annotation>
                                          <xs:documentation>End date and time of this interval.</xs:documentation>
                                      </xs:annotation>
                                   </xs:element>
                                   <xs:element name="start" type="xs:dateTime" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#DateTimeInterval.start">
                                      <xs:annotation>
                                          <xs:documentation>Start date and time of this interval.</xs:documentation>
                                      </xs:annotation>
                                   </xs:element>
                                </xs:sequence>
                             </xs:complexType>
                          </xs:element>
                       </xs:sequence>
                    </xs:complexType>
                    <xs:complexType name="Meter" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Meter">
                       <xs:annotation>
                          <xs:documentation>Physical asset that performs the metering role of the usage point. Used for measuring
consumption and detection of events.</xs:documentation>
                       </xs:annotation>
                       <xs:sequence>
                          <xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                             <xs:annotation>
                                <xs:documentation>Master resource identifier issued by a model authority.
The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
                                <xs:documentation>For CIMXML data files in RDF syntax, the mRID is
mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
                             </xs:annotation>
                          </xs:element>
                          <xs:element name="amrSystem" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#EndDevice.amrSystem">
                             <xs:annotation>
                                <xs:documentation>Automated meter reading (AMR) or other communication system
responsible for communications to this end device.</xs:documentation>
                             </xs:annotation>
                          </xs:element>
```

```xml
<xs:element name="formNumber" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Meter.formNumber">
    <xs:annotation>
        <xs:documentation>Meter form designation per ANSI C12.10 or other applicable standard. An
alphanumeric designation denoting the circuit arrangement for which the meter is applicable and its specific terminal
arrangement.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="serialNumber" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Asset.serialNumber">
    <xs:annotation>
        <xs:documentation>Serial number of this asset.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="MeterMultipliers" type="m:MeterMultiplier" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Meter.MeterMultipliers">
    <xs:annotation>
        <xs:documentation>All multipliers applied at this meter.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="MeterReadings" type="m:MeterReading" minOccurs="0"
maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Meter.MeterReadings">
    <xs:annotation>
        <xs:documentation>All meter readings provided by this meter.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="Names" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.Names">
    <xs:annotation>
        <xs:documentation>All names of this identified object.</xs:documentation>
    </xs:annotation>
    <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Name">
        <xs:sequence>
            <xs:element name="name" type="xs:string" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Name.name">
                <xs:annotation>
                    <xs:documentation>Any free text that name the object.</xs:documentation>
                </xs:annotation>
            </xs:element>
            <xs:element name="NameType" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Name.NameType">
                <xs:annotation>
                    <xs:documentation>Type of this name.</xs:documentation>
                </xs:annotation>
                <xs:complexType
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#NameType">
                    <xs:sequence>
                        <xs:element name="description"
type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#NameType.description">
                            <xs:annotation>
                                <xs:documentation>Description of the name
type.</xs:documentation>
                            </xs:annotation>
                        </xs:element>
                        <xs:element name="name"
type="xs:string" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-
generic#NameType.name">
                            <xs:annotation>
```

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                                                    <xs:documentation>Name of the name
type.</xs:documentation>
                                            </xs:annotation>
                                        </xs:element>
                                    </xs:sequence>
                                </xs:complexType>
                            </xs:element>
                        </xs:sequence>
                    </xs:complexType>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
        <xs:complexType name="MeterMultiplier" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#MeterMultiplier">
            <xs:annotation>
                <xs:documentation>Multiplier applied at the meter.</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                <xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                    <xs:annotation>
                        <xs:documentation>Master resource identifier issued by a model authority.
The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
                        <xs:documentation>For CIMXML data files in RDF syntax, the mRID is
mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="kind" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#MeterMultiplier.kind">
                    <xs:annotation>
                        <xs:documentation>Kind of multiplier.</xs:documentation>
                    </xs:annotation>
                    <xs:simpleType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#MeterMultiplierKind">
                        <xs:restriction base="xs:string">
                            <xs:enumeration value="ctRatio">
                                <xs:annotation>
                                    <xs:documentation>Current transformer ratio used to convert
associated quantities to real measurements.</xs:documentation>
                                </xs:annotation>
                            </xs:enumeration>
                            <xs:enumeration value="kE">
                                <xs:annotation>
                                    <xs:documentation>Test
constant.</xs:documentation>
                                </xs:annotation>
                            </xs:enumeration>
                            <xs:enumeration value="kH">
                                <xs:annotation>
                                    <xs:documentation>Meter kh (watthour)
constant. The number of watthours that must be applied to the meter to cause one disk revolution for an electromechanical
meter or the number of watthours represented by one increment pulse for an electronic meter.</xs:documentation>
                                </xs:annotation>
                            </xs:enumeration>
                            <xs:enumeration value="kR">
                                <xs:annotation>
                                    <xs:documentation>Register multiplier. The number to multiply the
register reading by in order to get kWh.</xs:documentation>
                                </xs:annotation>
                            </xs:enumeration>
                            <xs:enumeration value="ptRatio">
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                    <xs:annotation>
                        <xs:documentation>Potential transformer ratio used to convert
associated quantities to real measurements.</xs:documentation>
                    </xs:annotation>
                </xs:enumeration>
                <xs:enumeration value="transformerRatio">
                    <xs:annotation>
                        <xs:documentation>Product of the CT ratio and PT
ratio.</xs:documentation>
                    </xs:annotation>
                </xs:enumeration>
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="value" type="xs:float" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#MeterMultiplier.value">
        <xs:annotation>
            <xs:documentation>Multiplier value.</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="Names" type="m:Name" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.Names">
        <xs:annotation>
            <xs:documentation>All names of this identified object.</xs:documentation>
        </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MeterReading" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#MeterReading">
    <xs:annotation>
        <xs:documentation>Set of values obtained from the meter.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="Readings" type="m:Reading" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#MeterReading.Readings">
            <xs:annotation>
                <xs:documentation>All reading values contained within this meter
reading.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="valuesInterval" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#MeterReading.valuesInterval">
            <xs:annotation>
                <xs:documentation>Date and time interval of the data items contained within this meter
reading.</xs:documentation>
            </xs:annotation>
<xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#DateTimeInterval">
                <xs:sequence>
                    <xs:element name="end" type="xs:dateTime" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#DateTimeInterval.end">
                        <xs:annotation>
                            <xs:documentation>End date and time of this interval.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                    <xs:element name="start" type="xs:dateTime" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#DateTimeInterval.start">
                        <xs:annotation>
                            <xs:documentation>Start date and time of this interval.</xs:documentation>
                        </xs:annotation>
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                    </xs:element>
                </xs:sequence>
            </xs:complexType>
        </xs:element>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="Name" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Name">
    <xs:annotation>
        <xs:documentation>The Name class provides the means to define any number of human readable
names for an object. A name is &lt;b&gt;not&lt;/b&gt; to be used for defining inter-object relationships. For inter-object
relationships instead use the object identification 'mRID'.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="name" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Name.name">
            <xs:annotation>
                <xs:documentation>Any free text that name the object.</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="NameType" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Name.NameType">
            <xs:annotation>
                <xs:documentation>Type of this name.</xs:documentation>
            </xs:annotation>
            <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#NameType">
                <xs:sequence>
                    <xs:element name="description" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#NameType.description">
                        <xs:annotation>
                            <xs:documentation>Description of the name type.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                    <xs:element name="name" type="xs:string" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#NameType.name">
                        <xs:annotation>
                            <xs:documentation>Name of the name type.</xs:documentation>
                        </xs:annotation>
                    </xs:element>
                </xs:sequence>
            </xs:complexType>
        </xs:element>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="Reading" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Reading">
    <xs:annotation>
        <xs:documentation>Specific value measured by a meter or other asset, or calculated by a
system. Each Reading is associated with a specific ReadingType.</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="reason" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Reading.reason">
            <xs:annotation>
                <xs:documentation>Reason for this reading being taken.</xs:documentation>
            </xs:annotation>
            <xs:simpleType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#ReadingReasonKind">
                <xs:restriction base="xs:string">
                    <xs:enumeration value="billing">
                        <xs:annotation>
                            <xs:documentation>Reading(s) taken or to be
```

taken in response to a billing-related inquiry by a customer or other party. A variant of 'inquiry'.</xs:documentation>
          </xs:annotation>
         </xs:enumeration>
         <xs:enumeration value="demandReset">
          <xs:annotation>
           <xs:documentation>Reading(s) taken or to be taken in conjunction with the
resetting of one or more demand registers in a meter.</xs:documentation>
          </xs:annotation>
         </xs:enumeration>
         <xs:enumeration value="inquiry">
          <xs:annotation>
            <xs:documentation>Reading(s) taken or to be taken in response to
an inquiry by a customer or other party.</xs:documentation>
          </xs:annotation>
         </xs:enumeration>
         <xs:enumeration value="installation">
          <xs:annotation>
           <xs:documentation>Reading(s) taken or to be taken in conjunction with
installation of a meter.</xs:documentation>
          </xs:annotation>
         </xs:enumeration>
         <xs:enumeration value="loadManagement">
          <xs:annotation>
           <xs:documentation>Reading(s) taken or to be taken to support
management of loads on distribution networks or devices.</xs:documentation>
          </xs:annotation>
         </xs:enumeration>
         <xs:enumeration value="loadResearch">
          <xs:annotation>
           <xs:documentation>Reading(s) taken or to be taken to support research
and analysis of loads on distribution networks or devices.</xs:documentation>
          </xs:annotation>
         </xs:enumeration>
         <xs:enumeration value="moveIn">
          <xs:annotation>
           <xs:documentation>Reading(s) taken or to be taken in conjunction with a
customer move-in event.</xs:documentation>
          </xs:annotation>
         </xs:enumeration>
         <xs:enumeration value="moveOut">
          <xs:annotation>
           <xs:documentation>Reading(s) taken or to be taken in conjunction with a
customer move-out event.</xs:documentation>
          </xs:annotation>
         </xs:enumeration>
         <xs:enumeration value="other">
          <xs:annotation>
           <xs:documentation>Reading(s) taken or to be taken for some other reason
or purpose.</xs:documentation>
          </xs:annotation>
         </xs:enumeration>
         <xs:enumeration value="removal">
          <xs:annotation>
           <xs:documentation>Reading(s) taken or to be taken in conjunction with
removal of a meter.</xs:documentation>
          </xs:annotation>
         </xs:enumeration>
         <xs:enumeration value="serviceConnect">
          <xs:annotation>

```xml
                                                <xs:documentation>Reading(s) taken or to be taken in conjunction
with a connection or re-connection of service.</xs:documentation>
                                        </xs:annotation>
                                </xs:enumeration>
                                <xs:enumeration value="serviceDisconnect">
                                        <xs:annotation>
                                <xs:documentation>Reading(s) taken or to be taken in conjunction with a disconnection
of service.</xs:documentation>
                                        </xs:annotation>
                                </xs:enumeration>
                        </xs:restriction>
                </xs:simpleType>
        </xs:element>
        <xs:element name="reportedDateTime" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#BaseReading.reportedDateTime">
                <xs:annotation>
                        <xs:documentation>(used only when there are detailed auditing requirements) Date and time
at which the reading was first delivered to the metering system.</xs:documentation>
                </xs:annotation>
        </xs:element>
        <xs:element name="source" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#BaseReading.source">
                <xs:annotation>
                        <xs:documentation>System that originally supplied the reading (e.g., customer, AMI system,
handheld reading system, another enterprise system, etc.).</xs:documentation>
                </xs:annotation>
        </xs:element>
        <xs:element name="timeStamp" type="xs:dateTime" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#MeasurementValue.timeStamp">
                <xs:annotation>
                        <xs:documentation>The time when the value was last updated</xs:documentation>
                </xs:annotation>
        </xs:element>
        <xs:element name="value" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#BaseReading.value">
                <xs:annotation>
                        <xs:documentation>Value of this reading.</xs:documentation>
                </xs:annotation>
        </xs:element>
        <xs:element name="ReadingQualities" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#BaseReading.ReadingQualities">
                <xs:annotation>
                        <xs:documentation>All qualities of this reading.</xs:documentation>
                </xs:annotation>
   <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#ReadingQuality">
                        <xs:sequence>
                                <xs:element name="comment" type="xs:string" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ReadingQuality.comment">
                                        <xs:annotation>
                                                <xs:documentation>Elaboration on the quality code.</xs:documentation>
                                        </xs:annotation>
                                </xs:element>
                                <xs:element name="source" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ReadingQuality.source">
                                        <xs:annotation>
                                                <xs:documentation>System acting as the source of the quality
code.</xs:documentation>
                                        </xs:annotation>
                                </xs:element>
```

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                        <xs:element name="timeStamp" type="xs:dateTime"
minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ReadingQuality.timeStamp">
                            <xs:annotation>
                                <xs:documentation>Date and time at which the quality code was
assigned or ascertained.</xs:documentation>
                            </xs:annotation>
                        </xs:element>
                        <xs:element name="ReadingQualityType" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ReadingQuality.ReadingQualityType">
                            <xs:annotation>
                                <xs:documentation>Type of this reading quality.</xs:documentation>
                            </xs:annotation>
                            <xs:complexType sawsdl:modelReference="">
                                <xs:attribute name="ref" type="xs:string"/>
                            </xs:complexType>
                        </xs:element>
                    </xs:sequence>
                </xs:complexType>
            </xs:element>
            <xs:element name="ReadingType" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Reading.ReadingType">
                <xs:annotation>
                    <xs:documentation>Type information for this reading value.</xs:documentation>
                </xs:annotation>
                <xs:complexType sawsdl:modelReference="">
                    <xs:attribute name="ref" type="xs:string"/>
                </xs:complexType>
            </xs:element>
            <xs:element name="timePeriod" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#BaseReading.timePeriod">
                <xs:annotation>
                    <xs:documentation>Start and end of the period for those readings whose type has a time
attribute such as 'billing', seasonal' or 'forTheSpecifiedPeriod'.</xs:documentation>
                </xs:annotation>
    <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#DateTimeInterval">
                    <xs:sequence>
                        <xs:element name="end" type="xs:dateTime" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#DateTimeInterval.end">
                            <xs:annotation>
                                <xs:documentation>End date and time of this interval.</xs:documentation>
                            </xs:annotation>
                        </xs:element>
                        <xs:element name="start" type="xs:dateTime" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#DateTimeInterval.start">
                            <xs:annotation>
                                <xs:documentation>Start date and time of this interval.</xs:documentation>
                            </xs:annotation>
                        </xs:element>
                    </xs:sequence>
                </xs:complexType>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
    <xs:complexType name="ServiceLocation"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#ServiceLocation">
        <xs:annotation>
            <xs:documentation>A real estate location, commonly referred to as premises.</xs:documentation>
        </xs:annotation>
        <xs:sequence>
```

```xml
                        <xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                            <xs:annotation>
                                <xs:documentation>Master resource identifier issued by a model authority. The mRID must
semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
                                <xs:documentation>For CIMXML data files in RDF syntax, the mRID is mapped to rdf:ID or
rdf:about attributes that identify CIM object elements.</xs:documentation>
                            </xs:annotation>
                        </xs:element>
                        <xs:element name="accessMethod" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ServiceLocation.accessMethod">
                            <xs:annotation>
                                <xs:documentation>Method for the service person to access this service location. For
example, a description of where to obtain a key if the facility is unmanned and secured.</xs:documentation>
                            </xs:annotation>
                        </xs:element>
                        <xs:element name="direction" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Location.direction">
                            <xs:annotation>
                                <xs:documentation>(if applicable) Direction that allows field crews to quickly find a given
asset. For a given location, such as a street address, this is the relative direction in which to find the asset. For example, a
streetlight may be located at the 'NW' (northwest) corner of the customer's site, or a usage point may be located on the
second floor of an apartment building.</xs:documentation>
                            </xs:annotation>
                        </xs:element>
                        <xs:element name="needsInspection" type="xs:boolean" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ServiceLocation.needsInspection">
                            <xs:annotation>
                                <xs:documentation>True if inspection is needed of facilities at this service location. This could
be requested by a customer, due to suspected tampering, environmental concerns (e.g., a fire in the vicinity), or to correct
incompatible data.</xs:documentation>
                            </xs:annotation>
                        </xs:element>
                        <xs:element name="siteAccessProblem" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#ServiceLocation.siteAccessProblem">
                            <xs:annotation>
                                <xs:documentation>Problems previously encountered when visiting or performing work on
this location. Examples include: bad dog, violent customer, verbally abusive occupant, obstructions, safety hazards,
etc.</xs:documentation>
                            </xs:annotation>
                        </xs:element>
                        <xs:element name="CoordinateSystem" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Location.CoordinateSystem">
                            <xs:annotation>
                                <xs:documentation>Coordinate system used to describe position points of this
location.</xs:documentation>
                            </xs:annotation>
                            <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#CoordinateSystem">
                                <xs:sequence>
                                    <xs:element name="crsUrn" type="xs:string" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#CoordinateSystem.crsUrn">
                                        <xs:annotation>
                                            <xs:documentation>A Uniform Resource Name (URN) for the coordinate
reference system (crs) used to define 'Location.PositionPoints'.</xs:documentation>
                                            <xs:documentation>An example would be the European Petroleum Survey
Group (EPSG) code for a coordinate reference system, defined in URN under the Open Geospatial Consortium (OGC)
namespace as: urn:ogc:def:uom:EPSG::XXXX, where XXXX is an EPSG code (a full list of codes can be found at the EPSG
Registry web site http://www.epsg-registry.org/). To define the coordinate system as being WGS84 (latitude, longitude)
using an EPSG OGC, this attribute would be urn:ogc:def:uom:EPSG::4236.</xs:documentation>
```

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                                                <xs:documentation>A profile should limit this code to a set of allowed URNs
agreed to by all sending and receiving parties.</xs:documentation>
                                        </xs:annotation>
                                    </xs:element>
                            </xs:sequence>
                        </xs:complexType>
                    </xs:element>
                    <xs:element name="Hazards" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Location.Hazards">
                        <xs:annotation>
                            <xs:documentation>All asset hazards at this location.</xs:documentation>
                        </xs:annotation>
                        <xs:complexType sawsdl:modelReference="http://www.w3.org/2002/07/owl#Thing">
                            <xs:sequence>
                                <xs:element name="type" type="xs:string" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Hazard.type">
                                    <xs:annotation>
                                        <xs:documentation>Type of this hazard.</xs:documentation>
                                    </xs:annotation>
                                </xs:element>
                            </xs:sequence>
                        </xs:complexType>
                    </xs:element>
                    <xs:element name="mainAddress" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Location.mainAddress">
                        <xs:annotation>
                            <xs:documentation>Main address of the location.</xs:documentation>
                        </xs:annotation>
                        <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#StreetAddress">
                            <xs:sequence>
                                <xs:element name="streetDetail" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#StreetAddress.streetDetail">
                                    <xs:annotation>
                                        <xs:documentation>Street detail.</xs:documentation>
                                    </xs:annotation>
                                    <xs:complexType
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#StreetDetail">
                                        <xs:sequence>
                                            <xs:element
name="addressGeneral" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#StreetDetail.addressGeneral">
                                                <xs:annotation>
                                                    <xs:documentation>Additional address information, for
example a mailstop.</xs:documentation>
                                                </xs:annotation>
                                            </xs:element>
                                            <xs:element name="buildingName"
type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#StreetDetail.buildingName">
                                                <xs:annotation>
                                                    <xs:documentation>(if applicable) In certain cases the
physical location of the place of interest does not have a direct point of entry from the street, but may be located inside a
larger structure such as a building, complex, office block, apartment, etc.</xs:documentation>
                                                </xs:annotation>
                                            </xs:element>
                                            <xs:element name="code"
type="xs:string" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-
generic#StreetDetail.code">
                                                <xs:annotation>
```

<xs:documentation>(if applicable) Utilities often make use of external reference systems, such as those of the townplanner's department or surveyor general's mapping system, that allocate global reference codes to streets.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="name" type="xs:string" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#StreetDetail.name">
<xs:annotation>
<xs:documentation>Name of the street.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="number" type="xs:string" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#StreetDetail.number">
<xs:annotation>
<xs:documentation>Designator of the specific location on the street.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="prefix" type="xs:string" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#StreetDetail.prefix">
<xs:annotation>
<xs:documentation>Prefix to the street name. For example: North, South, East, West.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="suffix" type="xs:string" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#StreetDetail.suffix">
<xs:annotation>
<xs:documentation>Suffix to the street name. For example: North, South, East, West.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="suiteNumber" type="xs:string" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#StreetDetail.suiteNumber">
<xs:annotation>
<xs:documentation>Number of the apartment or suite.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="type" type="xs:string" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#StreetDetail.type">
<xs:annotation>
<xs:documentation>Type of street. Examples include: street, circle, boulevard, avenue, road, drive, etc.</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="withinTownLimits" type="xs:boolean" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#StreetDetail.withinTownLimits">
<xs:annotation>
<xs:documentation>True if this street is within the legal geographical boundaries of the specified town (default).</xs:documentation>

```
                                        </xs:annotation>
                                    </xs:element>
                                </xs:sequence>
                            </xs:complexType>
                        </xs:element>
                        <xs:element name="townDetail" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#StreetAddress.townDetail">
                            <xs:annotation>
                                <xs:documentation>Town detail.</xs:documentation>
                            </xs:annotation>
                            <xs:complexType
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#TownDetail">
                                <xs:sequence>
                                    <xs:element name="code"
type="xs:string" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-
generic#TownDetail.code">
                                        <xs:annotation>
                                            <xs:documentation>Town code.</xs:documentation>
                                        </xs:annotation>
                                    </xs:element>
                                    <xs:element name="country"
type="xs:string" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-
generic#TownDetail.country">
                                        <xs:annotation>
                                            <xs:documentation>Name of the
country.</xs:documentation>
                                        </xs:annotation>
                                    </xs:element>
                                    <xs:element name="name"
type="xs:string" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-
generic#TownDetail.name">
                                        <xs:annotation>
                                            <xs:documentation>Town name.</xs:documentation>
                                        </xs:annotation>
                                    </xs:element>
                                    <xs:element name="section"
type="xs:string" minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-
generic#TownDetail.section">
                                        <xs:annotation>
                                            <xs:documentation>Town section. For example, it is
common for there to be 36 sections per township.</xs:documentation>
                                        </xs:annotation>
                                    </xs:element>
                                    <xs:element
name="stateOrProvince" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#TownDetail.stateOrProvince">
                                        <xs:annotation>
                                            <xs:documentation>Name of the state or
province.</xs:documentation>
                                        </xs:annotation>
                                    </xs:element>
                                </xs:sequence>
                            </xs:complexType>
                        </xs:element>
                    </xs:sequence>
                </xs:complexType>
            </xs:element>
            <xs:element name="PositionPoints" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Location.PositionPoints">
```

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                    <xs:annotation>
                        <xs:documentation>Sequence of position points describing this location, expressed in
coordinate system 'Location.CoordinateSystem'.</xs:documentation>
                    </xs:annotation>
    <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#PositionPoint">
                        <xs:sequence>
                            <xs:element name="sequenceNumber" type="xs:integer"
minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#PositionPoint.sequenceNumber">
                                <xs:annotation>
                                    <xs:documentation>Zero-relative sequence number of this point within a
series of points.</xs:documentation>
                                </xs:annotation>
                            </xs:element>
                            <xs:element name="xPosition" type="xs:string" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#PositionPoint.xPosition">
                                <xs:annotation>
                                    <xs:documentation>X axis position.</xs:documentation>
                                </xs:annotation>
                            </xs:element>
                            <xs:element name="yPosition" type="xs:string" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#PositionPoint.yPosition">
                                <xs:annotation>
                                    <xs:documentation>Y axis position.</xs:documentation>
                        </xs:annotation>
                            </xs:element>
                            <xs:element name="zPosition" type="xs:string" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#PositionPoint.zPosition">
                                <xs:annotation>
                                    <xs:documentation>(if applicable) Z axis position.</xs:documentation>
                                </xs:annotation>
                            </xs:element>
                        </xs:sequence>
                    </xs:complexType>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
        <xs:complexType name="Status" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status">
            <xs:annotation>
                <xs:documentation>Current status information relevant to an entity.</xs:documentation>
            </xs:annotation>
            <xs:sequence>
                <xs:element name="dateTime" type="xs:dateTime" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.dateTime">
                    <xs:annotation>
                        <xs:documentation>Date and time for which status 'value' applies.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="reason" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.reason">
                    <xs:annotation>
                        <xs:documentation>Reason code or explanation for why an object went to the current status
'value'.</xs:documentation>
                    </xs:annotation>
                </xs:element>
                <xs:element name="remark" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.remark">
                    <xs:annotation>
                        <xs:documentation>Pertinent information regarding the current 'value', as free form
text.</xs:documentation>
```

```
                            </xs:annotation>
                        </xs:element>
                        <xs:element name="value" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Status.value">
                            <xs:annotation>
                                <xs:documentation>Status value at 'dateTime'; prior status changes may have been kept in
instances of activity records associated with the object to which this status applies.</xs:documentation>
                            </xs:annotation>
                        </xs:element>
                    </xs:sequence>
                </xs:complexType>
                <xs:complexType name="WorkTask" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#WorkTask">
                    <xs:annotation/>
                    <xs:sequence>
                        <xs:element name="mRID" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                            <xs:annotation>
                                <xs:documentation>Master resource identifier issued by a model authority.
The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally unique.</xs:documentation>
                                <xs:documentation>For CIMXML data files in RDF syntax, the mRID is
mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
                            </xs:annotation>
                        </xs:element>
                        <xs:element name="subject" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Document.subject">
                            <xs:annotation>
                                <xs:documentation>Document subject.</xs:documentation>
                            </xs:annotation>
                        </xs:element>
                        <xs:element name="Crews" minOccurs="0" maxOccurs="unbounded"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#WorkTask.Crews">
                            <xs:annotation>
                                <xs:documentation>All crews participating in this work task.</xs:documentation>
                            </xs:annotation>
                            <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Crew">
                                <xs:sequence>
                                    <xs:element name="mRID" type="xs:string" minOccurs="0"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.mRID">
                                        <xs:annotation>
                                        <xs:documentation>Master resource identifier
issued by a model authority. The mRID must semantically be a UUID as specified in RFC 4122. The mRID is globally
unique.</xs:documentation>
                                        <xs:documentation>For CIMXML data files in RDF syntax, the mRID is
mapped to rdf:ID or rdf:about attributes that identify CIM object elements.</xs:documentation>
                                        </xs:annotation>
                                    </xs:element>
                                    <xs:element name="Names" minOccurs="0"
maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#IdentifiedObject.Names">
                                        <xs:annotation>
                                        <xs:documentation>All names of this identified object.</xs:documentation>
                                        </xs:annotation>
                                        <xs:complexType
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Name">
                                            <xs:sequence>
                                                <xs:element name="name"
type="xs:string" minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Name.name">
                                                    <xs:annotation>
                                                        <xs:documentation>Any free text that name the
object.</xs:documentation>
```

```
                    </xs:annotation>
                  </xs:element>
                <xs:element name="NameType"
minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#Name.NameType">
                  <xs:annotation>
                    <xs:documentation>Type of this
name.</xs:documentation>
                  </xs:annotation>
              <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIM-
generic#NameType">
                    <xs:sequence>
     <xs:element name="description" type="xs:string" minOccurs="0" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#NameType.description">
       <xs:annotation>
           <xs:documentation>Description of the name type.</xs:documentation>
       </xs:annotation>
       </xs:element>
           <xs:element name="name" type="xs:string" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#NameType.name">
       <xs:annotation>
           <xs:documentation>Name of the name type.</xs:documentation>
       </xs:annotation>
       </xs:element>
                    </xs:sequence>
                  </xs:complexType>
                </xs:element>
              </xs:sequence>
            </xs:complexType>
          </xs:element>
        </xs:sequence>
      </xs:complexType>
      <xs:complexTypename="WorkTimeSchedule"
sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#WorkTimeSchedule">
          <xs:annotation>
            <xs:documentation>Time schedule specific to work.</xs:documentation>
          </xs:annotation>
          <xs:sequence>
            <xs:element name="kind" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#WorkTimeSchedule.kind">
              <xs:annotation>
                <xs:documentation>Kind of this work schedule.</xs:documentation>
              </xs:annotation>
              <xs:simpleType sawsdl:modelReference="http://iec.ch/TC57/CIM-
generic#WorkTimeScheduleKind">
                <xs:restriction base="xs:string">
                  <xs:enumeration value="actual">
                    <xs:annotation/>
                  </xs:enumeration>
                  <xs:enumeration value="earliest">
                    <xs:annotation/>
                  </xs:enumeration>
                  <xs:enumeration value="estimate">
                    <xs:annotation/>
                  </xs:enumeration>
                  <xs:enumeration value="latest">
                    <xs:annotation/>
```

```
                            </xs:enumeration>
                            <xs:enumeration value="request">
                                    <xs:annotation/>
                            </xs:enumeration>
                    </xs:restriction>
              </xs:simpleType>
        </xs:element>
        <xs:element name="scheduleInterval" minOccurs="1" maxOccurs="1"
sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#TimeSchedule.scheduleInterval">
                    <xs:annotation>
                            <xs:documentation>Schedule date and time interval.</xs:documentation>
                    </xs:annotation>
    <xs:complexType sawsdl:modelReference="http://iec.ch/TC57/CIMgeneric#DateTimeInterval">
                    <xs:sequence>
                            <xs:element name="end" type="xs:dateTime" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#DateTimeInterval.end">
                                <xs:annotation>
                                    <xs:documentation>End date and time of this interval.</xs:documentation>
                                </xs:annotation>
                            </xs:element>
                            <xs:element name="start" type="xs:dateTime" minOccurs="1"
maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/CIM-generic#DateTimeInterval.start">
                                <xs:annotation>
                                <xs:documentation>Start date and time of this
interval.</xs:documentation>
                                </xs:annotation>
                            </xs:element>
                    </xs:sequence>
              </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
</xs:schema>
```

圖 A.4　服 務 請 求 XSD

Figure A.4 – Service request XSD

參考資料

IEC 60050-300, International Electrotechnical Vocabulary – Electrical and electronic measurements and measuring instruments

– Part 311: General terms relating to measurements

– Part 312: General terms relating to electrical measurements

– Part 313: Types of electrical measuring instruments

– Part 314: Specific terms according to the type of instrument

參考資料

名詞對照

- C -

common information model, CIM	共同資訊模型
construction billing inquiry	施工帳單查詢
construction order	施工派工單
customer information system, CIS	用戶資訊系統
customer program	用戶方案
customer relationship management, CRM	用戶關係管理
customer service representative, CSR	客服人員
customer support, CS	用戶支援

- D -

distribution management system, DMS	配電管理系統

- E -

estimated restoration time, ERT	估計之復電時間

- F -

field crew	現場工班

- I -

interactive voice response, IRV	互動式語音應答
interface reference model, IRM	介面參考模型

- M -

maintenance order	維護派工單
middleware	中介軟體

- N -

network operation, NO	電網運作

- O -

outage management system, OMS　　　　停電管理系統

- P -

point of sale, POS　　　　　　　　　銷售點

- R -

restoration　　　　　　　　　　　復電

- S -

self-service inquiry　　　　　　　自助查詢

service level agreement, SLA　　　服務水準協議

service order　　　　　　　　　　服務派工單

- T -

trouble call management　　　　　障礙通報管理

trouble ticket　　　　　　　　　　障礙單

- U -

unified modelling language, UML　統一建模語言

- W -

work management, WM　　　　　　作業管理

- V-

XML schema definition, XSD　　　XML 綱要定義

相對應國際標準

IEC 61968-8:2015　　Application integration at electric utilities – system interfaces for distribution management – Part 8: interfaces for customer operations