# 智慧電網用戶側標準制定與驗證發展研究

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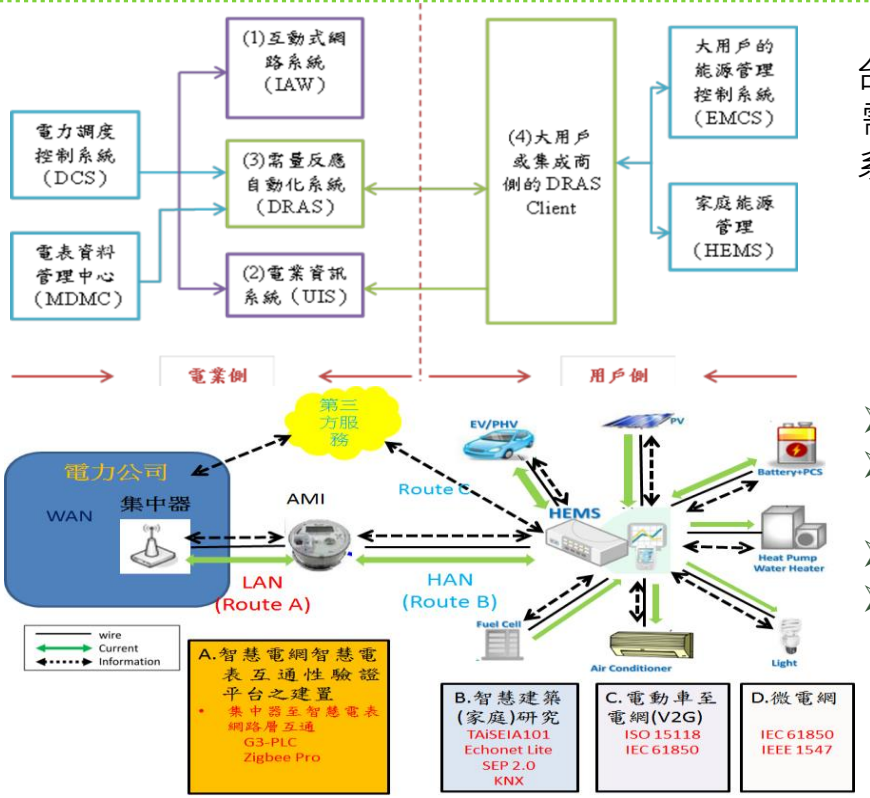
制定先進讀表系統(AMI)互通性產業標準，以發展虛擬電廠內子系統之間以及與電業系統之間的互通性及其測試驗證架構，及智慧電網用戶側設備互通性驗證方案研究，又AMI為用戶側智慧電網之核心部份，可藉此確保台電低壓用戶AMI之間的互通性，俾順利推動台電低壓AMI之建置。

- 社區微電網電力潮流管控與保護系統
- 分散式智慧電網之集中防護方法及其系統
- 多電池單元平衡控制電路
- 智慧建築(家庭)、電動車至電網(V2G)，與微電網(分散式能源、儲能)互通性檢測技術研究




台電採購之自動需量反應(ADR)系統的整體架構

- 智慧電表
- 智慧建築(家庭)
- 微電網
- 電動車至電網(V2G)

- 本計畫旨在擬定我國AMI互通性產業標準草案，且參與資策會之AMI互通性測試案例之編製，輔佐台電低壓10萬戶AMI工程之推動，擴大AMI之互通性產業標準至 (1)虛擬電廠之整合測試項目及其允收標準草案，(2)虛擬電廠內子系統之間以及與電業之間的互通性產業標準草案，(3)微電網(含直流微電網)運轉作業及整合測試產業標準草案，(4)AMI資安要求之產業標準草案，(5)智慧電網用戶側設備互通性驗證方案(包含智慧建築(家庭)、 電動車至電網(V2G)，與微電網(分散式能源、儲能)。此外，為先期掌握海外市場及協助台電低壓AMI建置，提出下列3項兩岸、1項台日的共通標準草案，與1項互通性驗證平台：
  - IEC 61850與配電管理系統之間的介面(兩岸)
  - 基於IEC 61850之饋線終端單元的通訊需求(兩岸)
  - 基於SEP2.0或OpenADR並適用PC118原則之智慧建築節電用的通訊標準(兩岸)
  - 用戶自設小風機適用於ECHONET之通訊介面標準(台日)
  - AMI Route A通訊網路層互通性驗證平台

# The standard and accreditation development of smart grid demand side

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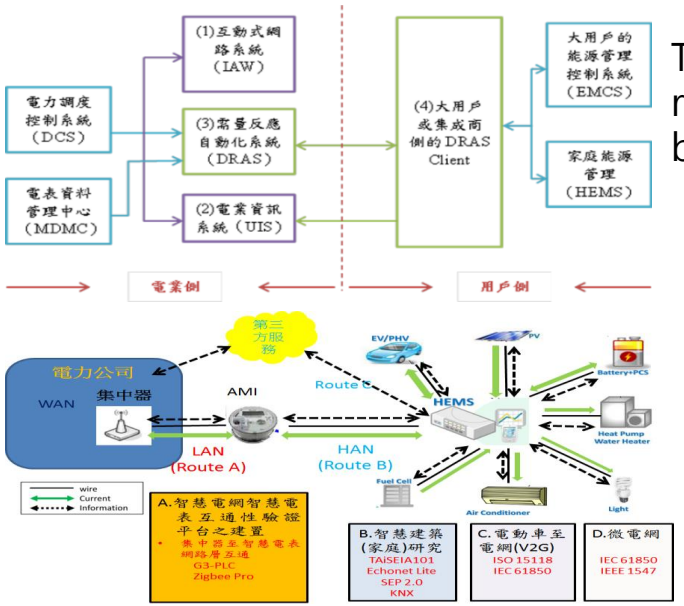
|---|---|
| Execution Unit | Bureau of Standards, Metrology and Inspection |
| Project Director | Secretary General Han-Chang Hsieh |

As AMI is the core of demand side management(DSM) in the smart grid(SG), all DSM subsystems and devices of SG have to be interoperable among themselves and with AMI. Due to this importance of interoperability, we extended the test and accreditation of AMI into a wider scope which shall encompass the interoperability inside the virtual power plant (VPP) as well as externally with the power utility system.

- Power flow control and protect system of community micro grid
- The method and system of distributed smart grid protection
- Drifting balanced circuit of multi cell unit
- Connectivity testing of smart building(home), vehicle to grid(V2G) and micro gird(distributed energy, ESS)




The automatic demand response (ADR) structure by Taipower

- Smart meter
- Smart building (home)
- Micro grid
- Vehicle to grid (V2G)

- jointly worked, Taipower and TSGIA for planning the Taiwan Industry Standard on Interoperability of advanced meter infrastructure (AMI) as well as the corresponding test and accreditation platform in order to support Taipower's low-voltage AMI engineering project for the installation of 100 thousand smart meters. As AMI is the core of demand side management(DSM) in the smart grid(SG), the DSM subsystems of SG have to be interoperable among themselves and with AMI. Due to this importance of interoperability, we are going to extend the test and accreditation of AMI into a wider scope which shall encompass the interoperability inside the virtual power plant (VPP) as well as externally with the power utility system. We accomplish:
  - Interface between distribution Management System and IEC 61850
  - The communication requirements of feed terminal unit based on IEC 61850
  - The PC118 principle smart building energy-saving communication standard based on SEP2.0 or OpenADR
  - The ECHONET principle standard of user-owned small turbine communication interface
  - The network layer interoperability verification platform of AMI Route A communication