The IEC Working Groups tasked with managing the Common Information Model (CIM) have been approached by two separate groups with candidate models for demand response, both intended to extend the CIM.

OASIS Energy Market Information Exchange (EMIX) & Energy Interoperation

On June 13, 2012, a representative from the Organization for the Advancement of Structured Information Standards (OASIS) presented the EMIX and Energy Interoperation standards via email. EMIX is focused on “Price and product definition” while Energy Interoperation deals with the “interaction between Smart Grids and their end nodes, including Smart Buildings, Enterprises, Industry, Homes, and Vehicles.” This model was developed under the NIST Priority Action Plan #9 and has already garnished industry support, with the OpenADR Alliance official developing a profile for demand response under the model.

After careful assessment and despite the momentum behind EMIX and Energy Interoperation, IEC WG 16 has decided not to pursue including the EMIX/EI information model as it currently exists in the CIM, or at least not until such time as the following issues have been addressed:

1. The OASIS standard was not built upon a CIM foundation and currently shares no common structures with the CIM. The OASIS standard leverages neither CIM classes nor the overall model structure and design and it proposes new components for a number of long-standing classes, including several core classes related to market products and energy schedules.

2. The OASIS standard appears to be focused on financial transactions. While there are financial objects within the CIM, it is important that the physical elements of the transmission system be properly modeling so that reliability-based functions are supported in addition to purely financial ones.

3. The OASIS standard appears to be focused on retail/consumer energy modeling and would need to adopt more of the wholesale modeling objects in the CIM to be compatible. Furthermore, the retail energy model used by OASIS is different from the retail energy model in the CIM.

ISO/RTO Council Wholesale Demand Response Communication Protocol

On May 31, 2012 representatives from the ISO/RTO Council (IRC) presented the newly drafted Wholesale Demand Response Communication Protocol (WDRCP). The model was also developed under the NIST Priority Action Plan program, in this case Priority Action Plan #19. The work was funded by the IRC and the development team includes demand response experts from all ISOs and RTOs in the United States plus industry experts from UISOL/Alstom and KEMA. It is currently under public review through the PAP19 feedback process with the opportunity for any interested party to propose improvements.
The IRC model appears to be a close fit to the CIM, for a number of reasons:

- The WDRCP model is aligned with the overall CIM organization and structure.
- The WDRCP model utilizes several dozen CIM classes with no modification, including those for all bidding, telemetry, and revenue metering functions of demand-side resources.
- The WDRCP model proposes 15 new CIM classes, a number of which are specializations of existing CIM classes.
- The WDRCP model has a good library of use cases, covering a number of wholesale marker models, a wide variety of metering configurations, and different resource deployment models.
- The WDRCP model leverages industry terminology and is consistent the NAESB business practices for demand response measurement & verification.
- The WDRCP profile contains a single dispatch message which can be used for both economic and reliability-based dispatches.
- The WDRCP profile includes message schemas which appear to be lightweight and logically organized.
- The PAP19 chairs anticipate a co-existence with retail-based protocols and have committed to delivering a mapping between WDRCP and OpenADR and between WDRCP and Multispeak.

Summary

TC57 WG 16 supports adding the IRC's Wholesale Demand Response Communication Model to the next release of the IEC CIM, and is in process of developing a New Work Item Proposal to be submitted to IEC through the US National Committee.

There are several minor changes needed within the IRC model including a need for additional use cases to justify the requested extensions and we have received a commitment that these changes will be made. Already one new member has joined WG 16 in order to manage this work through to completion.

We feel the WDRCP not only fills the gap in the current CIM for demand response, but also provides a solid foundation for other demand-side resource models, such as energy storage and local/renewable generation. We look forward to working with interested industry participants, including members of the ISO/RTO Council, to evolve the existing work product into one which can be incorporated directly into the next release of the IEC CIM.