

Statement of Edward J. Beronet
Elster Solutions before the
Federal Energy Regulatory Commission
Hearing on Smart Grid Standards
January 31, 2011

Mr. Chairman, members of the Commission, thank you for inviting me to speak today. My name is Ed Beronet. I am the Director of Software and Test for Elster Solutions. By way of background, I am an embedded systems engineer with over thirteen years of experience in electric metering and in smart metering solutions. I participate in numerous industry standards-setting organizations and co-chaired the American National Standards Institute C12.19 standard development panel. I currently chair the committee on ANSI C12.22, the IEEE 1703 committee and cochair the Advanced Metering Security Working Group operating within aegis of the Smart Grid Interoperability Panel. The company I work for, Elster, has designed and manufactured utility meters for over 170 years and is a world leader in Advanced Metering Infrastructure (AMI). Elster was the first to market with true two-way Advanced Metering Infrastructure, we pioneered radio-frequency mesh communications for smart meters; and we have manufactured 200 million meters worldwide in the last ten years, including 5 million two-way smart electric meters in North America. We are passionate about seeing the promise of the smart grid brought to reality.

My concern today is that the process and timing of the adoption of IEC standard 61968-9 *Application integration at electric utilities - System interfaces for distribution management: Interfaces for meter reading and control* not impair our ability to achieve that promise.

On October 6, 2010 the National Institute of Standards and Technology forwarded 5 International Electrotechnical Commission (IEC) standards from the Smart Grid

Interoperability Panel (SGIP) catalog of about 100 ‘vetted’ standards to the Federal Energy Regulatory Commission for consideration for making into regulations pursuant to the Energy Independence and Security Act of 2007. FERC acknowledged receipt of the standards on October 7.

One of the standards, IEC-61968 Part 9, was only finalized in late 2009 and is not in use in meters in any North American utility deployment, nor in meters by any European manufacturer. This standard is an abstract data model intended to represent metering data in the utility’s enterprise but not intended to be used as a concrete representation for implementation in meters directly. For that purpose, there are a number of jointly produced ANSI and IEEE smart metering standards being used in the US and Canada. These ANSI and IEEE standards are in the SGIP catalog, and many of them will likely be forwarded to FERC in future tranches for possible regulatory use. Today, there about 35 million smart meters installed in North America based on these ANSI and IEEE standards.

The suggested 61968-9 application is limited to establishing a Common Information Model interface in utility back office systems. Elster supports the recognition of IEC 61968-9 as one option for smart meter deployments. In fact, Elster is a leading developer of IEC 61968-9 in the context of the common information model (CIM) in utility back office systems, the application NIST proposes.

However, IEC 61968-9 is only one of scores of standards an AMI project might satisfy. NIST is still working through the numerous other SGIP catalog standards which will ultimately be sent to FERC. Because this process is ongoing, it would not be prudent to start a rulemaking that might require the use of IEC 61968-9 in the interim.

For metering communications, international metering standards in the SGIP catalog, include ANSI C12.18/IEEE P1701/MC 1218 *Protocol Specification for ANSI Type 2 Optical Port*; ANSI C12.19/IEEE P1377/MC 1219 *Utility Industry End Device Data Tables* (ANSI) and *Utility Industry Metering Communication Protocol Application Layer*

(End Device Data Tables) (IEEE and MC); and ANSI C12.22/IEEE P1703/MC 1222 *Protocol Specification for Interfacing to data Communications Networks*. While there is some recognition that a significant degree of standards harmonization is underway in the background narratives that go along with the five IEC standards sent from NIST to FERC, this is apparently lost when it comes to recommended actions.

Given that, my concern is not that the Commission would recognize the IEC meter data model standard. It is rather that in moving to adopt IEC 61968 without acknowledging *at the same time* the many other SDO-adopted and NIST-recognized meter interoperability standards pending in the NIST smart grid pipeline, FERC will give utilities and regulators the mistaken impression that the IEC standard is the only acceptable meter data format at any and every point in the system. And we know from discussions with both the NIST and FERC staffs that is not the agencies' intent.

Today every meter manufacturer and U.S. utility uses smart meter equipment employing the ANSI C12.19/IEEE 1377/MC 1219 table standard. The standard is mature, well understood and extremely practical and useful for transporting meter data within the AMI system. It has both an established track record of meeting the needs of deployed systems and a demonstrated capacity to accommodate innovations as AMI system needs evolve..

To adopt the IEC standard without also adopting the other SDO-approved, NIST-recognized, currently deployed meter table standards would cause serious market disruption and could freeze AMI deployments for the next year or longer.

Another factor ignored in the rush to endorse 61968-9 is cyber security. The implementations of the ANSI/IEEE/MC standards include cyber security, while 61968-9 does not, but rather relies on other IEC standards, some of which are not even yet written. Obviously, cyber security must be implemented in the field installation.

By contrast, ANSI C12.22/IEEE 1703/MC C1222 provides robust security employing NIST-approved AES-128 encryption and offers better authentication and integrity

features than any previous metering communications standard. Elster has included a White Paper on how security is implemented in our system releases.

Unfortunately, many of the state utility commissions don't have the technical expertise available to thoroughly understand the scope and applicability of these standards without federal guidance. They are simply looking to check the NIST/FERC standards compliance box on smart meter projects. The fact that the CIM of 61968-9 is being proposed in the very limited context of utility back office systems is just one example of a subtle but extremely important detail unlikely to be understood by regulators.

Encouraging state commissions to adopt the NIST transmitted/FERC approved standards without further clarification will leave states and utilities seeking tomorrow's standards on today's technology or, perhaps worse, application of standards to areas outside their useful domain.

Even more, unless federal regulators address NIST's ongoing mapping effort between ANSI C12.19 and IEC 61968, utilities may not understand their investment in ANSI standards-based systems was not wasted. Utilities and regulators must have assurance that legacy AMI systems will continue to have value.

Toward that end, we hope you will approve adoption of the IEC 61968 standard in tandem with the adoption of additional AMI table standards included in the SGIP catalog. At the very least, FERC must make clear that adoption of the IEC standard is not meant to forestall the use of other NIST SGIP catalog-recognized AMI standards, that the government is working to map the interface between ANSI C12.19 and IEC 61968, and that later tranches of standards are expected to include additional acceptable standards for AMI deployment.

Without FERC's assurance and public recognition that the standards it is presenting are not exclusive, and are evolutionary, we believe utilities will place planned deployments on hold until IEC 61968-9 is deployed in back office systems, essentially halting

smart meter deployment for the next 18 months to two years -- an outcome no one desires.

Mr. Chairman, I appreciate the opportunity to share Elster's concerns and would be happy to answer any questions you or the Commission might pose.