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**Machine-to-Machine communications (M2M);
Applicability of M2M architecture to Smart Grid Networks;
Impact of Smart Grids on M2M platform**

Reference
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Keywords
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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Machine-to-Machine communications (M2M).

1 Scope

The present document highlights the applicability of M2M architecture to smart grid networks. The present document develops the most relevant Smart grids use cases, used to derive high level requirements. In addition it provides a standard gap analysis (applicability of M2M APIs for Smart Grid applications, mechanisms to manage energy for end users, etc), and derives a set of recommendation for the work of ETSI M2M.

Finally it shows dependencies and relationships with other works within ETSI TCs and other standards organisations (including the ones covering the energy Layer: NIST, CEN/Cenelec and IEC in particular).

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

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2.1 Normative references

The following referenced documents are necessary for the application of the present document.

Not applicable.

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] CEN/CENELEC/ETSI SMCG: "Functional reference architecture for smart metering systems" (Final draft Technical Report CEN/CLC/ETSI/FprTR 50572 July 2011).

[i.2] http://www.3gpp.org/.

[i.3] http://www.sensus.com/ and http://sensus.co.uk/documents/10303/259817/UK-licensing-brochure.pdf.

[i.4] http://portal.etsi.org/portal/server.pt/community/TISPAN/339.

[i.5] IEC 62055-31: "Electricity metering - Payment systems - Part 31: Particular requirements - Static payment meters for active energy (classes 1 and 2)".

[i.6] http://www.zigbee.org/.

[i.7] "Companion Specification for Energy Metering" IEC 62056-21, IEC 62056-42, IEC 62056-46, IEC 62056-47, IEC 62056-53, IEC 62056-61, IEC 62056-62.

[i.8] IEEE P802.11: "Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".

NOTE: Available at http://standards.ieee.org/develop/project/802.11.html.

[i.9] IEEE 802.16/Conformance04-2006: "IEEE Standard for Conformance to IEEE 802.16 - Part 4: Protocol Implementation Conformance Statement (PICS) Proforma for Frequencies below 11 GHz".

NOTE: Available at http://standards.ieee.org/develop/project/802.16.html.

[i.10] "ZigBee® Smart Energy Overview".

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[i.11] "ZigBee® Smart Energy, version 2.0".

NOTE: http://www.zigbee.org/Standards/ZigBeeSmartEnergy/Version20Documents.aspx.

[i.12] Final report of the CEN/CENELEC/ETSI Joint Working Group on Standards for Smart Grids, 04 May 2011.

[i.13] NIST Special Publication 1108: "NIST Framework and Roadmap for Smart Grid Interoperability Standards", Release 1.0.

[i.14] ANSI C12.19: "American National Standard for Utility Industry End Device Data Tables".

NOTE: http://www.nema.org/Standards/Pages/American-National-Standard-for-Utility-Industry-End-Device-Data-Tables.aspx.

[i.15] http://portal.etsi.org/portal/server.pt/community/OSG/355.

[i.16] IEEE 1377/C12.19-1997: "IEEE Standard for Utility Industry End Device Data Tables".

NOTE: Available at http://standards.ieee.org/develop/project/1377.html.

[i.17] M/490 EN: "Smart Grid Mandate".

[i.18] Barney L. Capehart: "Distributed Energy Resources (DER)".

NOTE: http://www.wbdg.org/resources/der.php.

[i.19] EU Commission Task Force for Smart Grids: "Expert Group 3: Roles and Responsibilities of Actors involved in the Smart Grids Deployment".

NOTE: Available at http://ec.europa.eu/energy/gas_electricity/smartgrids/doc/expert_group3.pdf.

[i.20] M/441: "Smart Metering Mandate".

[i.21] ETSI TS 102 241: "Smart Cards; UICC Application Programming Interface (UICC API) for Java Card (TM)".

[i.22] ETSI TS 102 225: "Smart Cards; Secured packet structure for UICC based applications".

[i.23] ETSI TS 102 226:"Smart Cards; Remote APDU structure for UICC based applications".

[i.24] ETSI TS 102 690 (V1.1.1): "Machine- to- Machine communications (M2M); Functional architecture".

[i.25] IEC 62351: "Power systems management and associated information exchange - Data and communications security".

[i.26] IEEE Standards corner: "Focus on the IEC TC 57 standards".

NOTE: Available at http://www.ieee.org/portal/cms_docs_pes/pes/subpages/publications-folder/TC_57_Column.pdf.

[i.27] Directive 2004/22/EC of the European Parliament and of the Council of 31 March 2004 on measuring instruments.

NOTE: Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:135:0001:0080:EN:PDF.