How SMART are Standards that Sacrifice Intellectual Property Rights?

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I. Introduction and Welcome

II. Overview of ITSSD *ad hoc observer* Work at the World Intellectual Property Organization (WIPO) Standing Committee on the Law of Patents (SCP) Concerning Patents and Standards

A. ITSSD Comments Concerning Document SCP/13/2 Standards and Patents (March 2009) http://www.wipo.int/scp/en/meetings/session_14/studies/itssd_1.pdf

B. Supplement to ITSSD Comments Concerning the WIPO Report on Standards and Patents (SCP/13/2) (January 2010) http://www.wipo.int/scp/en/meetings/session_14/studies/itssd_supplement.pdf

C. The General Tenor of WIPO Report SCP 13/2 and ITSSD Findings Relating Thereto

1. *Perceived Problem*:

According to certain EU governments, academicians, SDOs, NGOs and multinational companies, "inherent tensions" exist between patents and standards, such that the "upholding of one deprives the function of the other". Since both "derive their justification from the public benefit", the resulting impairment of technology standards d development in the ICT, medical/health and clean/alternative energy technology sectors, occurs at taxpayer and society's expense. Member-based voluntary SDOs are not up to the task of enforcing ex ante patent disclosure obligations and imposing patent royalty frameworks on their members, let alone on nonmembers involved in standards development initiatives. In effect, it is alleged that RAND/FRAND standards terms rarely result in the least cost alternative (cf. 'royalty-stacking') for society, especially in the case of government procurement contracts, where 'Vendor lock-in' occurs.

a. Germany, France, Spain, UK, Denmark, The Netherlands, Belgium, Hungary

b. European Union

i. 2004 - Interoperable Delivery of European *e*Government Services to public Administrations, Businesses and Citizens (IDABC) program

ii. 2004 - European Interoperability Framework (EIF) v1.0

iii. 2005 – UNU-MERIT EU Commission Report

iv. 2007 – EU Council Report

v. 2008 - Open Source Observatory and Repository (OSOR)

vi. 2008 – UNU-MERIT Report
vii. 2008 – European Interoperability Framework (EIF) v.2.0
viii. 2009 – Unofficial (leaked) copy of re-worked EIF v.2.0
ix. 2009 – EU Commission White Paper on ICT Standardization

c. Professor Rishab A. Ghosh (United Nations University, Maastricht University)
d. Free Software Foundation Europe (FSFE), Open Forum Europe (OFE), European Committee on Interoperable Systems (ECIS), Foundation for Free Information Infrastructure (FFII), Knowledge Ecology International (KEI)
e. Worldwide Web Consortium (W3C), Organization for the Advancement of Structured Information Standards (OASIS)
f. Adobe Systems, Corel, IBM, Nokia, Opera, Oracle, RealNetworks, Red Hat, Oracle (formerly Sun Microsystems)
g. China - Regulations for the Administration of the Formulation and Revision of Patent-Involving National Standards (Interim) Arts. 3 and 8

2. *Recommended Solution*:
   a. Governments should imposed solutions where voluntary initiatives are deemed inadequate
      i. Where patent pools, royalty pie arrangements and other forms of cross-licensing are inadequate to foster ICT and other technology standards development at a reasonable and fair price, government-created mechanisms such as licenses of right, compulsory licenses and/or antitrust enforcement measures should be employed to foster competition, technology diffusion, information sharing, consumer choice and reasonable and fair pricing, in furtherance of the 'Public Interest'.
   b. Governments should create a new ICT/Medical/Clean Energy Technology legislative/regulatory framework to address the perceived conflict between standards and patents. The framework:
      i. Defines ICT 'Interoperability' as a 'Public Interest' benefiting commercial technology users and consumers, the satisfaction/ protection of which necessitates the lowest cost and most universally accessible 'Open Standards' incorporating only ICT technologies 'essential' to the functioning of the Standard
      ii. Redefines 'Open Standards' consistent with Free & Open Source Software (FOSS) - as economically open – e.g., 'Royalty-Free'
         A. In effect, EIF v1.0 defined the term 'open standard' as one where: i) "the specification document [is] available either freely or at a nominal charge…[and]…all [are able] to copy, distribute and use it for no fee or at a nominal fee"; ii) "the patents possibly present [in the standard or part of it are] made irrevocably available on a royalty free basis"; and iii) the standard may be reused without any constraints

iii. Administratively determines that ICT patents deemed 'Essential' to the functioning of ICT standards which are not 'Royalty-Free' limit/encumber ICT technology 'Interoperability', and thus, threaten the 'Public Interest'

iv. Administratively treats 'Essential Patents' which limit/encumber technology 'Interoperability', impair standards development, and threaten the 'Public Interest' as legally unenforceable

v. Reshape markets by instructing national and regional government procurement agencies (comprising >16.3% of EC GDP) sourcing eGovernment services to express a direct or indirect 'Preference' for 'Open', 'Essential' 'Royalty-Free' Patent-Embedded ICT Standards that creates a new 'Public ICT, Health & Eco Commons' and caters to ICT and other-related companies employing a new business model based on delivering services rather than IP-based products, by permitting them to recover (in financial and public relations terms) otherwise nonperforming balance sheet assets/expired patents

vi. Incentivizes compliant companies generous government grants and public approbation

vii. 'Takes' private property (patents) for 'public use' *without* 'full, adequate or fair compensation'.

c. Europe's *e*-Health Action Plan "Advocates the development of common interoperability approaches and standards for patient identifiers, medical data messaging, [and] electronic health records", based on adoption of Open Source reference implementations for care services…[and]…open and more free access to future and existing e-Health standards…taking inspiration from models such as the World Wide Web Consortium. Other product-service industry sectors have also been targeted for 'interoperability' standardization improvements to ensure *universal access* to 'essential services' and so-called 'user rights' they include energy, transport and broadcasting." Flora Giorgio-Gerlach, *European Commission Strategy for European eHealth Interoperability*, DG Information Society and Media, ICT for Health, European Commission; *e-Health - Making Healthcare Better for European Citizens: An Action Plan for a European e-Health Area* , Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, COM(2004)

III. Does the Evidence Reflect that Stakeholder Groups are Calling for the Obama Administration Approach to ICT/Medical/Clean Energy Technology Sector Standardization for Government Procurement Purposes to Track the European Framework?

A. OMB Circular A-119 and the National Technology Transfer and Advancement Act of 1996 "require [US] Federal [government] agencies to use [already existing 'open' private

commercial] voluntary consensus standards in their regulatory activities wherever possible and to avoid using 'government-unique' standards.

B. However: 2008 – IBM-sponsored Yale Information Society Project's Standards on Standards Recommends Changes to OMB Circular A-119 (on Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities) Consistent With EU Approach
   1. "Discuss[ed] problems and recommend[ed] solutions in the current global context of technical standardization
      a. "[T]he European Commission seems way ahead of [the] U.S. in assessing standard policy
      b. "Raise government awareness throughout the world to the deliverables of the Interoperable Delivery of European *e*Government Services (IDABC)"
      c. "[P]romote Agency guidance with respect to Standard body IP policies"
      d. Consider revisions to OMB Circular A-119 on what is an open standard… measures to address essential patents that are not subject to license commitment [i.e., where the] SDO has no control over patent holders"

C. However: 2008 – Legal Representatives to Standards Consortia and their Members Recommend Changes to OMB Circular A-119 and Other Government Changes to Reform US Standards Strategy Based on the EU Approach, Which Emphasizes the User & Consumer Rather than the Innovator Viewpoint
   1. Renergize implementation of the *e*Government Act of 2002 (P.L. 107-347) to promote the administration's 'Open Government' goals, to establish and promote 'virtual Civil ICT Rights', and to incentivize change in electronic health and other standards, so that "governments…can…ensure that any citizen using any technology and software…can continue to enjoy…freedom of speech, freedom of association, and freedom to interact with government".
   2. Harness "the enormous economic power of government procurement to influence the standards that industry adopts".
   3. "Without recourse to regulation, adopt[] a government-wide interoperability framework that (for example) exclusively implements Civil ICT Standards for document format and platform neutrality…"
   4. "[L]aunch[] a 'Standards for Standards' organization…to evaluate standards, or the SSOs that create them, for purposes of government procurement…[S]uch a neutral 'rating agency' would provide a competitive incentive among all SSOs to increase transparency, improve process values, and decrease vendor influence".
   5. "Revise…update[]…OMB Circular A-119 to expressly give equal status to consortium-developed standards…to require implementation of Civil ICT Standards where applicable, and to restrict procurement to standards, where available, that have otherwise been certified by the Standards for Standards body.
   6. "[R]egulatory agencies [such as]…the Department of Justice…[should]…provid[e] written guidance in areas such as the ex ante disclosure of patent licensing terms and …prosecut[e] those that 'game' the

standards development process…[to] facilitate the more rapid development and adoption of much-needed standards [and avoid]…'patent hold up' situations".

7. "The proliferation of poor quality patents is a concern in standards development. First…a standard, once widely adopted, 'locks-in' the marketplace, because it becomes it extremely expensive to switch to an alternative approach. Second, in areas (such as the Web, the Internet and areas in which open source software predominate), the imposition of royalties or restrictive licensing terms can be extremely problematic…Patent [r]eform [must be] aggressively promote[d]". Andy Updegrove, *10 Standards Recommendations for the Obama Administration*
8. "In January of 2005, the European Commission created a new programme, called the Interoperable Delivery of European *e*Government Services to public Administration, Business and Citizens (IDABC)… Significantly, one of the cornerstone requirements for achieving interoperability identified in the original (2004) version of the [IDABC's] EIF [EIF 1.0] is the use of open standards…defined as having the following minimum attributes: 'The intellectual property — i.e. patents possibly present — of (parts of) the open standard is made irrevocably available on a royalty free basis'…EIF 2.0 goes even further…'Open standards or technical specifications must allow all interested parties to implement the standards and to compete on quality and price…The goal is to have a competitive and innovative industry, not to protect market shares by raising obstacles to newcomers. Also, we want to be able to choose open source solutions or proprietary solutions on the basis of price/quality consideration'. This definition reflects a consumer's viewpoint, with his needs uppermost in mind." I believe that the EU is following a path that is leading towards the type of interoperability within governments, and between governments and citizens, that should serve as a model for governments everywhere." Andy Updegrove, *How Open a Platform does 'Open Government' Need?*
9. "[T]he President cannot make good on his promises of openness, achieve his technology-dependent policy agenda, reduce the national budget deficit, or protect the nation against cybersecurity threats unless procurement officers actively embrace and utilize the best software available in every case, whether it be proprietary or FOSS. Increasingly, the best software tool for a given job is likely to be the FOSS alternative…especially one that fully implements open standards — [which] will better protect the procuring agency from vendor lock-in." Andy Updegrove, *It's Time for Obama to Come Out for FOSS*

D. However: 2009 – Computer and Communications Industry Association (CCIA) Recommends Changes to OMB Circular A-199 Consistent With EU Approach

1. "The European Commission has acknowledged the growing scope of user interests as well as the reality of consortia operating outside of the formal system. Recent Commission work on the unique characteristics of ICT standards includes its consultation on the white paper *Modernising ICT Standardisation in the EU - The Way Forward*. The Obama Administration's Open Government Initiative emphasizes the need for participatory and collaborative engagement between the

government and knowledgeable individuals, organizations, and businesses on the outside. If this initiative is to build confidence within the community of potential users, it must take a flexible and open approach to high-level standards. Standards for collaboration of this type will, in effect, produce a more proactive and collaborative process than contemplated by National Technology Transfer and Advancement Act of 1995 and OMB Circular A-119, which are directed to industry consensus standards. *CCIA Letter to House Science Committee Chair*

E. However: 2006 - The Standards Consortia OASIS Recommends Abandoning the RAND/FRAND Approach for Setting Patent Royalties in the Case of Public Standards

1. "RAND licensing terms pose a potential threat to the health of an open, accessible Internet…[as]…revealed in several thousand emails sent to the W3C public comment mailing list…RAND ignores the importance of open source…one of the most powerful, creative forces in computing today…RAND principles made operative in a standards setting create additional difficulties…RAND may be acceptable if the royalty fee is guaranteed to be zero, for eternity [possibly 'with reciprocity'] accompanied by terms which bind the patent holder to a permanent, unconditional, irrevocable grant of freedom under the license…RAND licensing with royalty fees should be considered positive in some situations where the revenue generated can be used to financially support other software R&D governed by RF expectations." *Patents and Open Standards,* Cover Pages, OASIS

F. However: 2009 – 50 Companies, Academic Institutions and Community Groups Formed the Nonprofit Organization Open Source America (OSA), the Mission of Which is to Promote 'Open Source' in the U.S. Federal Government Sector

1. "More than 70 major companies, academic institutions and high profile technologists have launched a campaign to educate US government agencies about the benefits of open source technology…[G]roups such as Google, RedHat, Novell, Linux, Mozilla, Sun Microsystems and the Electronic Frontiers Foundation have teamed up to create Open Source For America. The joint effort is a coalition aimed at lobbying the US Federal government to consider using open-source software over proprietary code." *Open Source for America Welcomes Lucid Imagination as Its Latest Member in Advocating Open Source in the U.S. Federal Government*, MarketWire; Dana Oshiro, *Open Source for America: The New Government Accountability*, Read-Write Web

G. However: 2009 – Google Public Policy Blog Emphasizes that 'Open Standards' Are Those Unencumbered by Patents

1. "Standards unencumbered by patents. If implementers need to worry about licenses to practice the standard, it is not really a completely open standard." Vint Cerf, *Where the Smart Grid Meets the Internet*

H. However: 2009 – The Independent System Operator (ISO)/ Regional Transmission Organization (RTO) Council Recommends that NIST Adopt Royalty-Free 'Open' Standards

1. "The IRC believes that NIST should give preference to open standards that are royalty free and prohibit the use of vendor owned intellectual property within a Smart Grid standard, unless that property is provided on reasonable and non-discriminatory terms to the community." *ISO/RTO Council Comments on National Institute of Standards and Technology Proposed Smart Grid Interoperability Standards*

I. However: 2009 – The National Energy Marketers Association and Intelligent Energy Recommend that FERC Develop and Adopt Only 'Open', Non-Discriminatory (Non-Proprietary) Standards to Facilitate the Smart Grid

1. "We urge the [Federal Energy Regulatory] Commission…FERC leadership to develop and implement truly "open" (open standards) non discriminatory (non-proprietary) access to the new data pipelines (IT infrastructures)…and urge the Commission to seize this opportunity to provide national leadership on the deployment of open, non-discriminatory "standards and protocols" (i.e., non-proprietary) to ensure smart grid functionality, interoperability and to guard against the creation of barriers to access, use and competitive technology development." Vincent J. Vesuvio, *Comments of the National Energy Marketers Association and Intelligent Energy, Before Federal Energy Regulation Commission Re: Smart Grid Policy*

J. However: 2008-2009 – Open Source Journalists Argue that the Obama Administration Should Not Waste Taxpayer Monies on Proprietary Technologies Susceptible to Vendor Lock-in

1. "Right now we have a collection of very expensive and very proprietary systems, run by a collection of vendors who seem most interested in maintaining market share, not starting a health care revolution. If you just toss more money at these vendors, without demanding interoperability based on open, royalty-free standards, you are going to waste billions of dollars and just recreate the problems we now have in broadband. Instead the new Administration needs to lay down some simple markers, mandating them in all new contracts. Open systems. Open standards. Full interoperability without royalty-bearing bottlenecks." Dana Blankenhorn, *Obama Risks Wasting Billions on Health IT*
2. "If the government's money goes to cement the current technology in place, we will have a very hard time innovating in health care reform." Steven Lohr, *Doctors Raise Doubts on Digital Health Data* quoting interviewed Dr. D. Mandl, co-author of *No Small Change for the Health Information Economy*
3. "In effect, the health care industry is mirroring what IT managers and consumers have debated for the last decade: proprietary enterprise systems vs. web-based applications. I worry that the providers of the proprietary systems have too much influence, and the hospital and other decision makers too little understanding of the

stakes, to get this right". Christopher Meyer, *Why the Stimulus Should Fund Open-Source Systems*

4. "NIST has stepped in when it comes to the smart grid. First and foremost is that the U.S. government is providing the domestic smart grid market the largest injection of capital in the industry's history — over $4 billion — in order to kick-start it. Without those funds, which are just starting to trickle down to projects, the smart grid industry would be moving much more slowly, if at all…[W]ithout the massive injections of funds, and the NIST standards that are intertwined with the stimulus allocation, the market would not be moving at all in 2010." Katie Fehrenbacher, *Report: Government Smart Grid Standards Process Slowing Down the Market*.
5. "Like any standards-making process that could deliver riches to some companies while leaving others out in the cold, expect the smart grid standards debate to become very heated. Utilities, which buy network gear in 10- to 20-year deployment life cycles, want open standards so that they won't get locked into buying from any one equipment provider…Proprietary smart grid gear makes the vendors the most money, however, so expect companies to try to wedge their proprietary technology into the standards-making process." Katie Fehrenbacher, *How to Hammer Out Smart Grid Standards In 30 Days or Less, Or Your Money Back*

IV. Does the Evidence Reflect that the Obama Administration Approach to ICT/Medical/Clean Energy Technology Sector Standardization for Government Procurement Purposes Actually Tracks the European Framework?

A. The Obama Administration Approach to ICT/Medical/Clean Energy Technology Sector Standardization is Facilitated, in Part, by the American Recovery and Reinvestment Act (ARRA)

1. $4.3B ARRA stimulus (taxpayer) funding is provided for SMART Grid technologies through the US Department of Energy (DOE), including IT & communications hardware, SMART meters & other intelligent devices, applications software used to operate the grid and manage consumer energy usage, software to manage meter & grid data.
2. $20B ARRA Health Information Technology for Economic and Clinical Health Act (HITECH) Act stimulus (taxpayer) funding is provided for Healthcare IT through the US Department of Human Health and Services (HHS) and its Centers for Medicare and Medicaid Services (CMS). It covers investments in new core health IT infrastructure and direct incentives to physicians and hospitals that implement and use eligible electronic health records (EHR) systems under the conditions laid out in the law, to accelerate the move toward digital patient information. $1.1B of that amount covers comparative effectiveness research (CER), which compares treatments and strategies to improve health.
3. $7.2B ARRA stimulus (taxpayer) funding for development of a national broadband plan by the US Federal Communications Commission (FCC), flowing through the

Commerce Department's National Telecommunications and Information Administration (NTIA) and the US Agriculture Department's Rural Utilities Service (RUS), which can ensure that all people of the United States have access to broadband capability and also significantly upgrade U.S. broadband connections to boost the adoption rate of health IT.

a. Utilities report they are limited by their lack of access to suitable wireless broadband spectrum and that lack of a nationwide band to build an interoperable Smart Grid will slow the nation's progress toward greater energy independence and energy efficiency…NTIA and the FCC should specifically explore possibilities for coordination of Smart Grid use in appropriate federal bands. Any new broadband network built in the identified spectrum should be required to meet standards of interoperability, customer data accessibility, privacy and security. Use of this spectrum should not be mandated, so that legacy systems are not stranded and that commercial, other shared networks and unlicensed wireless networks can be used where appropriate… DOE, in collaboration with the FCC, should conduct a thorough study of the communications requirements of electric utilities, including, but not limited to, the requirements of the Smart Grid. Building upon the FCC's recent efforts, DOE should collect data about utilities' current and projected communications requirements, as well as the types of networks and communications services they use." *Energy and the Environment – Chapter 12, Connecting America: The National Broadband Plan*, US Federal Communications Commission

4. 2007 Energy Independence and Security Act (EISA) funding, including for demonstration projects, and standards

B. The Obama Administration's Approach to ICT/Medical/Clean Energy Technology Sector Standardization is Based on the US Prior Successful Broadband and Internet Experience

1. "To help America realize world-leading high performance, Congress directed that the National Broadband Plan include a 'plan for use of broadband infrastructure and services in advancing consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, worker training, private sector investment, entrepreneurial activity, job creation and economic growth and other national purposes'…Across all these priorities, broadband enables *the free* and efficient exchange of information.

a. Doctors can understand the needs of their patients better and faster by exchanging electronic health records, which improves the quality of care and reduces costs.

b. Smart meters for energy can arm consumers and businesses with information to reduce energy consumption and unlock new opportunities for energy entrepreneurship.

   c. Citizens can have better visibility into and involvement in policymaking." *Part III – National Purposes, Connecting America: The National Broadband Plan*, US Federal Communications Commission

2. "'The smart grid is an electricity Internet. Without the broadband revolution, you cannot have the revolution we're talking about.'" Martin LaMonica, *Smart Grid Potential Gated by Broadband*, quoting U.S. Rep. Ed Markey (D-Mass.)
3. "Technical interoperability through standards is supposed to safeguard various players, including consumers and utilities, against technical obsolescence and wasted investment…In some ways, NIST is looking at the Internet standards as a model for how the process should be operated. Last week, there was an event called Grid-Interop where a governing panel was created specifically to focus on interoperability. 'Over time this organization (called the Smart Grid Interoperability Panel) is going to become something like the Internet architecture board…It's not being set up to develop standards. It's really being set up to develop the overall architecture and select which standards should be used'…said…George Arnold, the national coordinator for smart-grid interoperability at the National Institute of Standards and Technology (NIST). Martin LaMonica, *Time Short to Agree on Smart-Grid Standards*
   a. "Established by NIST with the assistance of EnerNex, under a contact enabled by the [ARRA]…the Smart Grid Interoperability Panel (SGIP) [is] a new stakeholder forum [that will] provide technical support to the Commerce Department's National Institute of Standards and Technology (NIST) as it coordinates standards for a modernized electric power system…[T]he SGIP has three primary functions: Provide technical guidance to facilitate development of standards for a secure, interoperable Smart Grid; Specify testing and certification requirements necessary to assess the interoperability Smart Grid-related equipment, software, and services; and Oversee the performance of activities intended to expedite the development of interoperability and cyber security specifications by standards development organizations." *Smart Grid Interoperability Panel Launched; Governing Board Elected*, NIST News Release
4. "[T]he U.S. needs to achieve an interoperable, 'plug-and-play' smart grid that avoids vendor lock-in." Nick Sinai, *MIT Field Hearing on Broadband's Role in Green Energy and the Environment*
5. "[T]he FCC National Broadband Plan suggests adoption of a new voluntary permissive copyright license, administered by the government, to permit educational digital use…Other copyright suggestions include 'a statutory framework to facilitate identification of copyright holders and securing of permissions in an efficient and cost-effective way'… It suggests amending the Copyright Act to make such uses feasible." Chris Meadows, *National Broadband Plan Includes Copyright Reforms*
6. "A critical goal of the Smart Grid is to enable new technologies and support new business models, just as the Internet generated new technologies and business models a decade ago, and just as it continues to do today. Like the Internet, the

Smart Grid is a system of systems that embraces diversity of technology, operators, and connection. The composition of these systems will change as technology evolves, generating new businesses and new interactions. To support this generative quality, the systems of the Smart Grid must not demand great intimacy with each other—they must interact with each other using minimum amounts of mutual information." *Report to NIST on the Smart Grid Interoperability Standards Roadmap* (Contract No. SB1341-09-CN-0031), Electric Power Research Institute

C. ARRA and EISA Instruct Government to Play a Central Role in the Setting of 'Open' Standards that Will Enable the Build-out of an Interoperable Smart Grid

1. EISA directs the US Department of Energy (DOE) to:
   a. Report to Congress on the deployment of Smart Grid technologies and any barriers to deployment;
   b. Establish a Smart Grid Advisory Committee and a Smart Grid Task Force to assist with implementation;
   c. Conduct Smart Grid R&D;
   d. Develop measurement strategies to assess energy savings and other aspects of implementation;
   e. Create a program that reimburses 20% of qualifying Smart Grid investments;
   f. Encourage utilities to employ Smart Grid technology and to allow utilities to recover Smart Grid investments through rates.
2. EISA directs the US National Institute of Standards and Technology (NIST) to establish protocols and standards to increase the flexibility of use for Smart Grid equipment and systems. *CRS Report for Congress, Energy Independence and Security Act of 2007: A Summary of Major Provisions*
3. "EISA directs the Federal Energy Regulatory Commission (FERC) to initiate rulemakings to adopt standards and protocols necessary to facilitate the functionality and interoperability of Smart Grid technology in the interstate transmission of electric energy and in regional and wholesale electricity markets, once it determines that the standards identified in the NIST framework development efforts have led to sufficient consensus." *NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 1.0*
   a. "EISA, however, does not make any [smart grid] standards mandatory and does not give the Commission authority to make or enforce any such standards. Under current law, the Commission's authority, if any, to make smart grid standards mandatory must derive from the FPA [Federal Power Act'. Similarly, its authority to allow rate recovery of smart grid costs must derive from the FPA." *US Federal Energy Regulatory Commission Smart Grid Policy Policy Statement (7/16/09)*
4. "EISA specifies that the interoperability framework should be 'flexible, uniform, and technology neutral.' [It] also instructs that the framework should accommodate 'traditional, centralized generation and distribution resources' while also

facilitating incorporation of new, innovative Smart Grid technologies, such as distributed renewable energy resources and energy storage…Sound interoperability standards are needed to ensure that sizable public and private sector technology investments are not stranded." *NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 1.0*

5. "NIST uses the definition of voluntary consensus standards given in OMB Circular A-119…where such standards are defined as developed and adopted by voluntary consensus standards bodies. In these standards, there are provisions that require that the relevant intellectual property owners have agreed to make that intellectual property available on a nondiscriminatory, royalty-free, *or* reasonable royalty basis to all interested parties." *NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 1.0*
6. "As a general rule…NIST believes that Smart Grid interoperability standards should be *open*; that is, developed and maintained through a collaborative, consensus-driven process that is open to participation by all relevant and materially affected parties and not dominated or under the control of a single organization or group of organizations, and readily and reasonably available to all for Smart Grid applications." *NIST Framework and Roadmap for Smart Grid Interoperability Standards, Release 1.0*
7. FERC, under EISA, is authorized to incentivize utilities' investment in smart grid technologies through base rate recovery. Included among the four showings a public utility must make to FERC in order to secure rate recovery of smart grid investment costs (i.e., to include such costs in its rate base) is "a showing that it has minimized the possibility of stranded investment in smart grid equipment, in light of the fact that its filings will predate adoption of interoperability standards". In other words, pursuant to current case law - *NEPCO Municipal Rate Committee v. FERC*, 668 F.2d 1327, 1333 (D.C. Cir. 1981), a utility must show that its "Smart Grid devices and equipment, including those used in a Smart Grid pilot program or demonstration project", are "'used and useful' in providing service."
    a. "To make this showing concerning potential stranded smart grid investment, applicants must show how they have relied to the greatest extent practical on existing, widely adopted and open interoperability standards; and where feasible, relied on systems and firmware that can be securely upgraded readily and quickly…An open architecture is publicly known, so any and all vendors can build hardware or software that fits within that architecture, and the architecture stands outside the control of any single individual or group of vendors. In contrast, a closed architecture is vendor-specific and proprietary, and blocks other vendors from adoption. An open architecture encourages multi-vendor competition because every vendor has the opportunity to build interchangeable hardware or software that works with other elements within the system. *Gridwise Architecture Council Decision-Maker's Interoperability Checklist Draft Version 1.0*
    b. "[The Commission] note[s] that Congress recently made utilization of open protocols and standards, if available and appropriate, a condition of

receiving funding from the Department of Energy for demonstration projects and grants pursuant to EISA sec. 1304 and 1306. See ARRA sec. 405(3) and 405(8)." *US Federal Energy Regulatory Commission Smart Grid Policy Policy Statement (7/16/09)*

D. ARRA Instructs Government to Play a Central Role in the Setting of 'Open' Standards that Will Enable the Build-out of Interoperable Health IT Systems

1. "As each [federal] agency implements, acquires, or upgrades health information technology systems used for the direct exchange of health information between agencies and with non-Federal entities, it shall utilize, where available, health information technology systems and products that meet…interoperability standards… recognized by the Secretary of Health and Human Services (the 'Secretary'), in accordance with guidance developed by the Secretary, as existing on the date of the implementation, acquisition, or upgrade of health information technology systems…'Interoperability' means the ability to communicate and exchange data accurately, effectively, securely, and consistently with different information technology systems, software applications, and networks in various settings, and exchange data such that clinical or operational purpose and meaning of the data are preserved and unaltered." *Promoting Quality and Efficient Health Care in Federal Government Administered or Sponsored Health Care Programs*, Presidential Executive Order 13410 (2006)
2. "[F]ree-flowing and interoperable data have increased competition, improved customer understanding, driven innovation and improved decision-making. Fortune 500 companies such as Google and Amazon have based their business models on the importance of unlocking data and using them in ways that produce far-reaching changes. Health IT can further this priority." *Comparative Effectiveness Research Funding*, HHS website
    a. "Health IT enables widespread data capture which in turn allows better real-time health surveillance and improved response time to update care recommendations, allocate health resources and contain population-wide health threats…The HITECH Act should vastly improve both the capture of interoperable clinical data and consumer access to such data…Digital health data are difficult to collect and aggregate. Such data generally are held in proprietary 'siloed' systems that do not communicate with one another and therefore cannot be easily exchanged, aggregated or analyzed. The 'meaningful use' incentives for electronic health records will greatly increase the capture of interoperable clinical health information…Coordinated standards and protocols will likely increase innovation and discovery within basic science research, clinical research and public health research, helping to alleviate many failings of the health care system." *Health Care – Chapter 10, Connecting America: The National Broadband Plan*, US Federal Communications Commission
3. "ARRA authorizes the Centers for Medicare & Medicaid Services (CMS) to provide reimbursement incentives for eligible professionals and hospitals who are

successful in becoming 'meaningful users' of certified electronic health record (EHR) technology." *Meaningful Use,* Health Information Technology, US Department of Health and Human Services; *CMS and ONC Issue Regulations Proposing a Definition of 'Meaningful Use' and Setting Standards for Electronic Health Record Incentive Program*, News Release, US Department of Health and Human Services

a. On December 30, 2009, the CMS issued a proposed rule that "would implement the provisions of…ARRA…that provide incentive payments to eligible professionals (EPs) and eligible hospitals participating in Medicare and Medicaid programs that adopt and meaningfully use certified electronic health record (EHR) technology. The proposed rule would specify the initial criteria an EP and eligible hospital must meet in order to qualify for the incentive payment; calculation of the incentive payment amounts; payment adjustments under Medicare for covered professional services and inpatient hospital services provided by EPs and eligible hospitals failing to meaningfully use certified EHR technology; and other program participation requirements…Service Oriented Architecture: The term 'service oriented architecture' is defined in this proposed rule as a means of organizing and developing information technology capabilities as collaborating services that interact with each other based on open standards. We are defining this term in the context of HIT projects authorized under the HITECH Act to ensure that different systems and programming languages provide the basis for interoperability among and between applications that may reside on different platforms through a communication protocol to achieve health information exchange required under ARRA.
    i. …Given the expectations in the ONC interim final rule for system performance, interoperability, and the health measures data discussed in this proposed rule that CMS and the States will need to collect from professionals, we believe that the costs for maintaining certified EHR technology will also be on the higher end of the range at $20,610." *Medicare and Medicaid Programs; Electronic Health Record Incentive Program*, CMS/HHS Proposed Rule

b. The ONC/HHS interim rule issued on December 30, 2009 "represents the first step in an incremental approach to adopting standards, implementation specifications, and certification criteria to enhance the interoperability, functionality, utility, and security of health information technology and to support its meaningful use. The certification criteria adopted in this initial set establish the capabilities and related standards that certified electronic health record (EHR) technology will need to include in order to, at a minimum, support the achievement of the proposed meaningful use Stage 1 (beginning in 2011) by eligible professionals and eligible hospitals under the Medicare and Medicaid EHR Incentive Programs…This will allow us to incrementally update our initial set of standards, implementation

specifications, and certification criteria and provide a framework to maintain them. Our decision to adopt such updates will be informed and guided by recommendations from the HIT Policy Committee, HIT Standards Committee, public comment, industry readiness, and future meaningful use goals and objectives established for the Medicare and Medicaid EHR Incentive Programs. As a result, we expect, unless otherwise necessary, to adopt standards, implementation specifications, and certification criteria synchronously with and to support a transition to the next stage of meaningful use in the Medicare and Medicaid EHR Incentive Programs. In doing so, we also anticipate increasing the level of specificity we provide related to standards, implementation specifications, and certification criteria as well as phasing out certain alternative standards that have been adopted in this initial set. Furthermore, we anticipate that the requirements for meaningful use will become more demanding over time, and consequently that Certified EHR Technology will need to include greater capabilities as well as the ability to exchange electronic health information in a variety of circumstances with many different types of health information technology. Finally…it is possible that the certification programs established by the National Coordinator could certify other types of HIT, perhaps related to certain specialty products and personal health records.

i. …To guide our approach to adopting the standards, implementation specifications, and certification criteria below, we established the following goals: • Promote interoperability and where necessary be specific about certain content exchange and vocabulary standards to establish a path forward toward semantic interoperability; • Support the evolution and timely maintenance of adopted standards; • Promote technical innovation using adopted standards; • Encourage participation and adoption by all vendors, including small businesses; • Keep implementation costs as low as reasonably possible; • Consider best practices, experiences, policies, frameworks, and the input of the HIT Policy Committee and HIT Standards Committee in current and future standards; • Enable mechanisms such as the NHIN [Nationwide Health Information Network] to serve as a test-bed for innovation and as an open-source reference implementation of best practices… certification should focus on meaningful use and be leveraged to improve security, privacy, and interoperability…We developed [a] list of candidate Stage 2 standards by considering the recommendations made by the HIT Standards Committee related to standards to support meaningful use Stage 2 and developing our own estimates of what it would take to advance interoperability.

   A. "The Nationwide Health Information Network (NHIN) is a set of standards, services and policies that enable secure

health information exchange over the Internet. The NHIN will provide a foundation for the exchange of health IT across diverse entities, within communities and across the country, helping to achieve the goals of the HITECH Act…The NHIN Work Group, part of the Health IT Policy Committee, is currently developing recommendations for extending the secure exchange of health information using NHIN standards, services and policies to the broadest audience possible." *Nationwide Health Information Network (NHIN): Overview,* Health Information Technology, US Department of Health and Human Services

B. "A group of federal agencies, local, regional and state-level Health Information Exchange Organizations (HIOs) and integrated delivery networks, formerly known as the NHIN Cooperative, has been helping to develop the NHIN standards, services and policies. These entities currently include the Social Security Administration, MedVirginia, the Department of Veterans Affairs, the Department of Defense, and Kaiser Permanente." *NHIN Limited Production Exchange,* Health Information Technology, US Department of Health and Human Services

C. "The Health IT Policy Committee will make recommendations to the National Coordinator for Health IT on a policy framework for the development and adoption of a nationwide health information infrastructure, including standards for the exchange of patient medical information…ARRA provides that the Health IT Policy Committee shall at least make recommendations on standards, implementation specifications, and certifications criteria in eight specific areas." *Health IT Policy Committee (a Federal Advisory Committee)*, Health Information Technology, US Department of Health and Human Services

D. "NHIN Direct is a project to expand the standards and service definitions that, with a policy framework, constitute the NHIN. Those standards and services will allow organizations to deliver simple, direct, secure and scalable transport of health information over the Internet between known participants in support of Stage 1 'meaningful use'…This project will expand the standards and service descriptions available to the NHIN to address the key Stage 1 requirements for meaningful use…The policy direction for NHIN Direct is defined by the NHIN Workgroup of the HIT Policy Committee." *The NHIN Direct Project*, NHIN Direct

E. "We anticipate work in NHIN Direct to create specific profiles for end-to-end semantic interoperability." *NHIN Direct FAQ*, NHIN Direct

F. "The NHIN Direct project will adhere to the following design principles agreed to by the HIT Standards Committee from the feedback provided to the Implementation Workgroup…Keep the implementation cost as low as possible; eliminate any royalties or other expenses associated with the use of standards…Create publicly available controlled vocabularies & code sets that are easily accessible / downloadable." John Halamka, *Introducing NHIN Direct*, Life as a Healthcare CIO

1. "The Health IT Standards Committee is charged with making recommendations to the National Coordinator for Health IT on standards, implementation specifications, and certification criteria for the electronic exchange and use of health information. Initially, the Health IT Standards Committee will focus on the policies developed by the Health IT Policy Committee's initial eight areas…In developing, harmonizing, or recognizing standards and implementation specifications, the Health IT Standards Committee will also provide for the testing of the same by the National Institute for Standards and Technology (NIST). " *Health IT Standards Committee (a Federal Advisory Committee)*, Health Information Technology, US Department of Health and Human Services

G. "The HIT Standards Committee met on Thursday, November 19, 2009…John Halamka, co-chairman of the committee, gave the following list of guiding principles for standards recommendations which were polished at the meeting…Keep the implementation cost as low as possible; eliminate any royalties or other expenses associated with the use of standards…The third recommendation is to keep the implementation cost as low as possible speed of this came through loud and clear. Minimize the costs associated with implementation of standards, particularly eliminating… licensing fees and other expenses…The idea was to get into the space to not to have to pay to be using the standards that have them being adopted at no cost. John Halamka, *Guiding Principles for the HIT Standards Committee*, Life as a Healthcare CIO

H. "[W]e believe this definition of Certified EHR Technology will lead to a more competitive marketplace and allow those who adopt HIT to choose from a variety of offerings ranging from subscription services, to vendor-based products, to open source products." *Health Information Technology: Initial Set of Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology*, Office of the National Coordinator for Health Information Technology, HHS/ONC Interim Final Rule

E. Does the Evidence Reflect the Obama Administration's Preference for Free and Open Source Software (FOSS) for Government Procurement Purposes Considering the Software Platforms Federal Agencies Have Thus Far Adopted Pursuant to OMB's Open Government Directive?

1. "President Obama announced the government will use open source software to create a national electronic health records system for the military. By pursuing two open source options – the Department of Veterans Affairs' VistA medical records system and Connect from Sun Microsystems -- proponents hope the Obama administration is sending a signal that open source software could become a vital part of national reform. How big a role open source may play could be determined by a study in its formative stages now. The American Recovery and Reinvestment Act [P.L. 111-5] calls for a study of open source health IT to be completed by October 2010." *Section 4104(b)(1) - Study and Report On Availability Of Open Source Health Information Technology Systems, of TITLE IV—Medicare and Medicaid Health Information Technology; Miscellaneous Medicare Provisions of the American Recovery and Reinvestment Act of 2009*, P.L. 111-5 (Feb. 17, 2009)
   a. "How that study is formed and who takes charge may have a lot to do with open source's fate" (emphasis added)…Although both the VistA and Connect systems predate his administration, Obama's willingness to pursue them with a relatively loud public endorsement gives open source advocates reason for hope…'Eventually, health IT is going to have to be open source to be interoperable. That seems like the only logical place to start,' said Mike Doyle, president and CEO of Medsphere Systems Corporation, a provider of open source health IT…VA's VistA system, considered by many to be one of the nation's most advanced EHR systems, can share data between any VA hospital or health care facility around the world, according to VA officials. The larger, newly announced system will add DOD to the equation, allowing military personnel to be electronically entered and followed in the system from the start of their military life to the end" (emphasis added). George Lauer, *Military E-Health Record Plan Gives Open Source a Boost*, iHealthBeat
2. "The DOE has released its Open Government Plan, a program that focuses on providing the public and other stakeholders access to its activities and resources, as well as improved communications." "The plan highlights flagship initiatives

spearheaded by DOE including the launch of Open Energy Information (OpenEI.org), a new open-source web platform that opens DOE resources and data to the public." "This open-source web platform will make a range of DOE resources and open energy data widely available to the public." *DOE Opens Up: Provides Public Access to Energy Resources, Policies and Activities*; *Department of Energy Releases Open Government Plan*; *Flagship Initiatives,* The US Department of Energy Department Open Government Plan

3. During April 2009, the Office of the National Coordinator at HHS released for download and public use the "federally developed, free and open-source software…called *Connect*…created under the auspices of the Federal Health Architecture initiative led by…Robert Kolodner, the outgoing head of the ONC…The result is a software gateway made available to 'any public or private-sector organization that wants to use the solution in the future to tie into the NHIN'". Joseph Conn, *Feds Release Open-source NHIN Gateway Software*, ModernHealthcare.com

   a. *Connect* is "an open technology platform using Sun's open source software… Sun's GlassFish, the Java Composite Application Platform Suite (CAPS) SOA Platform, and the Sun Java Identity Management suite…to connect federal government agencies and health information exchanges…[It]…shows [t]he United States Department of Health and Human Services (HHS)…commitment to using open source technologies…[and]… President Obama's commitment to healthcare reform…" *Nationwide Health Information Network Relies on Sun's Open Source Software: NHIN-CONNECT Gateway Solution Links Federal, Local and Private Sectors*, SUN Systems News

V. Conclusions?

A. "Many voices call for 'open' standards for the Smart Grid. They should be careful to distinguish between the necessary characteristic of universally availability and the much less important goal that all included technologies be royalty free…Short of congressional act, the U.S. government has no power to declare Smart Grid patents unenforceable or royalty-free. Action to accomplish such an unadvisable goal is no more likely that an act of Congress banning patents on machines for treating cancer. Patent incentives to stimulate innovation are too valuable." Jeffrey E. Young, *The Impact of Patents on Smart Grid Objectives*

B. "George Arnold from NIST…recognize[s] the need for innovative IPR policies in standards organizations and described the quandary that NIST finds itself in: even though open standards are required to build the Smart Grid, intellectual property cannot be given away systematically." Laurent Liscia, *Patents, Standards and Innovation* OASIS

C. "[T]here is nothing "Smart" about implementing multiple, proprietary, non-compatible... standards across the country that raise the cost of doing business in different markets."

Vincent J. Vesuvio, *Comments of the National Energy Marketers Association and Intelligent Energy, Before Federal Energy Regulation Commission Re: Smart Grid Policy*

D. "[On May 18, 2009,] Energy Secretary Steven Chu and Commerce Secretary Gary Locke discussed the White House's smart-grid plans…with more than 70 executives from utilities, manufacturers, and telecommunications and information technology firms…Mr. Locke said. 'Companies whose business model depends on customized proprietary interfaces to lock in customers will now have to find a new business model based on open standards.'" Henry J. Pulizzi, *Obama Administration Unveils New Set of Smart-Grid Standards*

1. "In the Netherlands, the September 2007 government action plan Netherlands in Open Connection expresses an explicit 'preference for open-source software in the case of equal suitability'. This recognised that public procurement must not discriminate between individual vendors**,** which is anti-competitive**…**Such discrimination between individual vendors goes against applicable rules and procurement principles. However, preference within a particular tender towards a specific business model is generally accepted and widespread in several areas - such as when a preference is expressed for leasing or buying capital equipment in a call for tender. Preference for a specific business model is reasonable if it better meets specific procurement needs. This is, of course, not a 'preference' at all in the sense of the principles of non-discrimination and equal treatment, since any economic operator who is willing to meet the specific procurement needs may bid for such a tender. Thus, it is only a preference for meeting the specific, clearly defined and justifiable needs of the procuring agency. This is the argument used by the March 2008 Dutch government guideline, *The Acquisition of (Open-source) Software*, prepared in order to implement the Dutch procurement policy." Rishab Aiyer Ghosh**,** Ruediger Glott**,** Patrice-Emmanuel Schmitz and Abdelkrim Boujraf**,** *OSOR Guidelines Public Procurement and Open Source Software*
    a. [E]ven before September 2008, the Dutch Government had already "submitted its public procurement guidelines to the European Commission…[with] the Commission repl[ying that] it broadly supported the approach adopted in the guidelines."
        i. The Dutch Governments' interoperability model had incorporated the IDABC's EIF v1.0, previously released during 2004, pursuant to which 'open' standards are defined as those where "the patents possibly present [in the standard or part of it are] made irrevocably available on a royalty free basis". Paul Meller, *European Public Sector Open-source Guidelines Spark Debate*