

SQUIRE  
SANDERS

LEGAL  
COUNSEL  
WORLDWIDE



## Building the Smart Grid: Role of Intellectual Property Rights

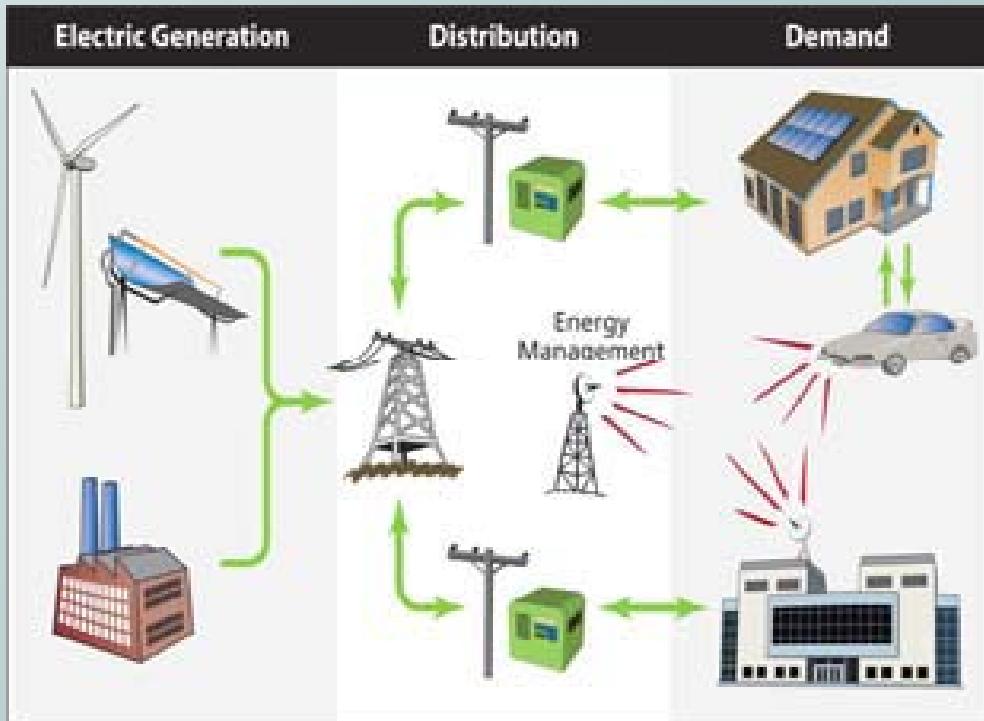
James L. Reed

Squire, Sanders & Dempsey L.L.P.

jreed@ssd.com

+1.415.954.0314

# The Smart Grid Replaces 20th Century Power Grids With 21st Century Technology



***It is the infrastructure needed to enable everyone to become part of the solution to our energy problems***

# Smart Grid

---

- Integrates both centralized and distributed (renewable) energy sources
- Gives consumers a more direct role and incentive to reduce energy waste
- Increases the reliability of the grid (less blackouts)
- Enhances security of supply (less vulnerable to outside threats)

*“[W]hile the application of technology is not a panacea [to our energy problems], without the Smart Grid, even the boldest energy-efficiency initiatives are not enough.” US Department of Energy*

# US – China Cooperation on the Smart Grid

---

- There is a shared understanding of the common problems with our power grids
- A commitment to finding a common solution is also the best solution *for both industry and our environment*
- An important milestone is arriving at a mutual understanding of IP rights
- There are differing views on the proper role of IP rights in new markets, such as the Smart Grid, not only on the global level, *but within the United States as well.*

# *Outline of Discussion Topics*

---

- IP Rights in Smart Grid technology – Patents
  - Current debate in the United States - should the scope of a US patent be more limited?
  - US courts continue to address this question
- Interoperability Standards for the Smart Grid
  - The tension between IP rights and the desire to adopt standards compatible with the best technology
- Concluding Remarks

# IP Rights in Smart Grid Technology – Patents

- Making the Smart Grid a reality requires an understanding of how to provide incentives for developing enabling technologies. *Patents are intended to serve this purpose.* However, patents can also produce an opposite effect when there is a risk/reward imbalance:
  - **Pro-patent view:** Patents enable businesses to recover the capital expenditures that were needed to develop a new, unproven technology into a viable commercial product (*risk or reward*).
  - **Anti-patent view:** Patents discourage research and development, because they entitle the patent holder to collect fees for any improvement in a pre-existing technology covered by the patent (*no shared risk or shared reward*)

# IP Rights in Smart Grid Technology – Patents

- Risk and reward imbalances can be addressed by refining the patent laws
- That is, refining the patent laws that are intended to distinguish between those innovations that are entitled to a patent right from those that are not patent worthy

# The US Courts Have Become Proactive

---

- The highest court in the land, the US Supreme Court, has taken steps to bring perceived risk-reward imbalances back into alignment
- The Court raised the bar to a patent in 2007:
  - “The combination of familiar elements [in the technology] according to known methods is likely to be obvious when it does no more than yield predictable results” *KSR Int'l v. Teleflex, Inc.*, 127 S.Ct. 1727, 720 (2007)
  - In other words, **when an invention does not advance science, it should not be protectable by a patent right**
- In 2010, the Court will decide whether to limit the scope of patentable subject matter in *In re Bilski*.

# *In re Bilski*

---

- The *In re Bilski* decision might **significantly** limit the ability for someone to obtain a patent on certain Smart Grid applications:
  - *Should patents be limited to inventions tied to a special purpose machine, e.g., a computer running software, or, more broadly, require only a “useful, tangible result”?*

# *In re Bilski*

---

- *Limiting Patents to Special Purpose Machines:*
  - **Pro:** Distinguishes between theoretical ideas or basic research with no immediate, practical applications, and applications applied to the real world
  - **Con:** Makes it near impossible to protect IP rights for certain Smart Grid technologies, because the patent right cannot be defined in terms of a “specially configured machine” or single entity practicing the invention

# *In re Bilski*

---

- *Patent Rights Made Available for any “Useful, Tangible Result”*
  - **Pro:** Maintains incentives to innovate in new areas, with assurance that those innovations can be protected by a patent right
  - **Con:** Proliferates the growth of blocking patents, i.e., patents whose only purpose is to erect barriers to competitors, that do little to advance the art in meaningful ways

# Interoperability Standards for the Smart Grid

---

- The United States' National Institute of Standards and Technology (NIST) is responsible for enacting interoperability standards (i.e., common interfaces between different technologies, so that they can work together)
- Standards are adopted based upon findings and recommendations from a Standards Setting Committee, which includes industry representatives

# Interoperability Standards for the Smart Grid

- Examples of Standards under consideration for the Smart Grid:
  - **Demand response** – A standard for enabling mechanisms and incentives to cut power usage during peak times. After this standard has been adopted, industry can develop the technologies that will make end-users more financially accountable for their energy usage patterns
  - **Electric transportation** – A standard for connecting electric vehicles to the Smart Grid. After this standard is adopted, large scale integration of plug-in electric vehicles becomes possible

# IP Rights and Industry Acceptance of a Standard

- But even when a technology appears ideally suited to meet present and future needs required by the NIST standard, there remains the problem of industry-wide acceptance of the standard:
  - *Companies participating in the standard selection process naturally want a standard selected that favors their technology*

# IP Rights and Industry Acceptance of a Standard

- There are rules for participants in the standard selection process, such as agreeing to not patent in certain areas relating to the standard and fully disclosing all patents
- These rules limit the areas that can be patented
  - *Nevertheless, concerns over one technology gaining a competitive advantage over another vis-à-vis an adopted standard remains*

# IP Rights – Patent Pooling or Sharing

---

- Past solutions to this problem have included agreements among patent holders to collectively license their patents on a royalty-free, non-discriminatory basis:
  - Example: Companies holding patents “essential” to implementation of real-time reporting of energy usage offer royalty-free licenses to builders of consumer-based smart metering applications for home appliances

# IP Rights and Acceptance of a Standard

- This approach, however, can have disadvantages:
  - Results in adoption of technology that does not perform as well as a newer technology alternative
  - Denies the patent holder an opportunity to recover the capital expenditure that enabled the commercial use of the technology (competitors get free access to the market)
- *Patent pooling arrangements reduce barriers to entry. But they also can reflect a compromise on the technology adopted to meet present and future needs of the standard*

# Conclusion

---

- IP rights issues are complex and exist at both national and international levels – The United States continues to struggle with finding a proper place for patents in technology development.
- IP rights cannot be ignored – Nor can the concerns that a few patent holders can erect barriers that inhibit incentives for research and development in new technologies
- Clearly, a central and immediate objective is to agree on those Smart Grid enabling technologies that should be made available on a royalty-free and non-discriminatory basis, verses those that may be bought and sold – *To deny one and not the other is not a solution*