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Practice Areas



Patent Litigation

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Demand Response and Patent Exposure

The core business model of energy producers and providers does not traditionally create significant patent litigation risk. Despite the complexity of the modern energy grid, the basic business and technology of energy generation has not changed significantly in the past 100 years. However, new programs, including residential demand response, executed via smart home appliances and controls, may expose utility companies to increased liability. Demand response programs allow utility providers to reduce grid load, and energy pricing, by offering customers pricing incentives to reduce energy usage during times of peak demand. Specifically, energy providers respond to increasing peak demand either by creating excess capacity—by building more plants and transmission infrastructure, or by reducing demand—also known as “peak shaving.” If one of these two options are not followed, the inaction in the face of rising demand can create black-outs and brown-outs. The first option is both cost and time intensive, thus energy providers are looking to the second option of “peak shaving” or reducing demand through demand response programs. By turning to demand response tactics, utilities avoid the need for costly increased

capacity in a way that also avoids unexpected and potentially life-threatening customer power shut-offs that result during uncontrolled black and brown outs. While such programs have been generally available for commercial customers, recently, demand response opportunities for residential customers have been expanding. Where these residential demand response programs allow energy providers to directly control, through the internet, consumers’ smart thermostats and appliances, energy providers may be exposed to patent liability.

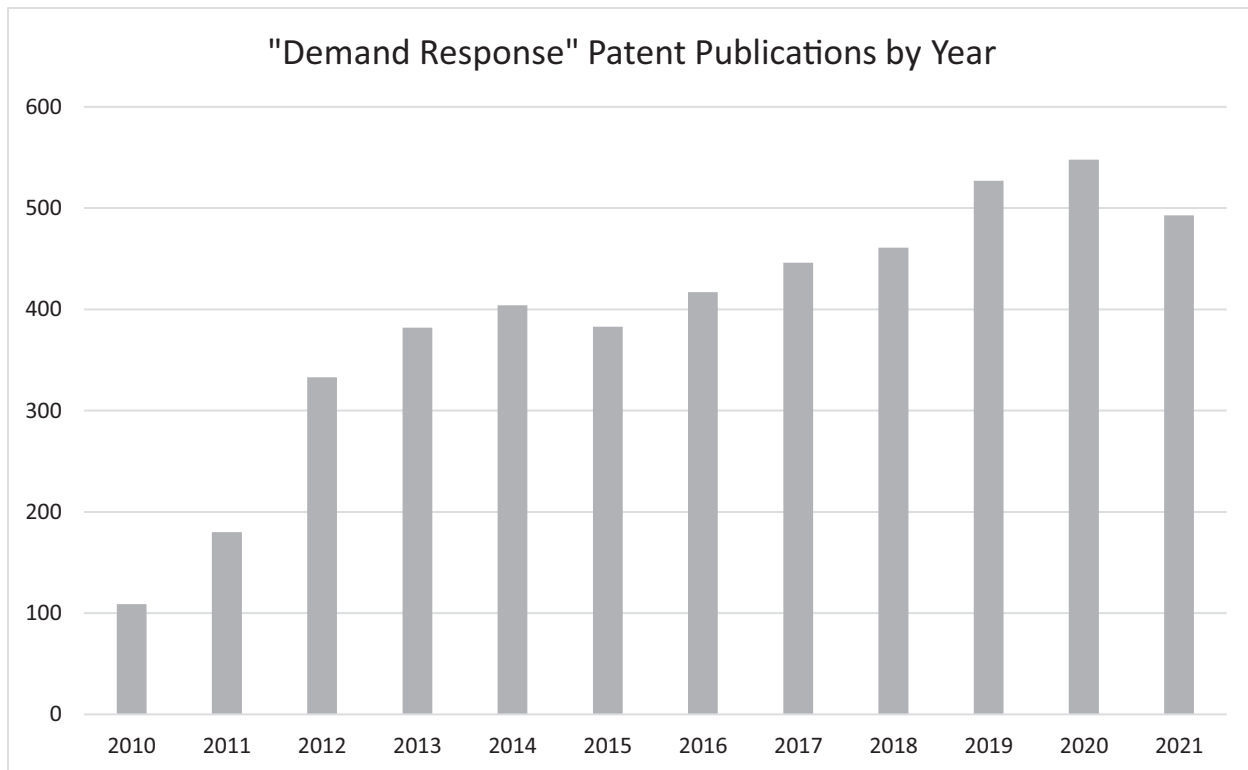
Demand Response

Demand response programs incentivize consumers to reduce energy usage during periods of peak demand by offering price reductions and rebates. Some residential programs, like the one offered by Salt River Project, a utility company in Arizona, are strictly manual. The utility defines “on-peak hours” and incentivizes consumers to reduce usage during those times. (<https://www.srpnet.com/prices/hometou.aspx>.) In exchange, the consumers pay lower rates for energy used during off-peak hours. (*Id.*) The program is manual because it relies on consumers actively reducing their energy usage.

Other residential programs are automated. Here, during peak energy usage, the utility may remotely adjust consumer’s

thermostat. For example, during a period of peak demand, the utility may set thermostat thresholds to temporarily limit A/C usage. (See The FERC’s 2019 Assessment of Demand Response and Advanced Metering at 41 (https://www.ferc.gov/sites/default/files/2020-04/DR-AM-Report2019_2.pdf) (discussing “residential smart thermostat programs” as having “significant cost-effective potential”).)

With the advent and increased availability of internet connected appliances and “smart” devices, utility providers will likely increase usage of automated demand response programs. Indeed, the Federal Energy Regulatory Commission’s 2010 “National Action Plan on Demand Response” stated that smart appliances “can respond automatically in near real-time to the signals of a utility” and that “smart thermostats are essential for some demand response initiatives and can greatly increase the effectiveness of others.” (The FERC’s 2010 “National Action Plan on Demand Response” at 3; 75 (energy.gov/sites/prod/files/oeprod/DocumentsandMedia/FERC_NAPDR_-_final.pdf); see also The FERC’s 2017 “Assessment of Demand Response and Advanced Metering” at 20, 34 (<https://www.ferc.gov/sites/default/files/2020-05/DR-AM-Report2017.pdf>) (discussing increases in subscription to demand response programs using smart thermostats, new programs offering smart thermostat integrated demand response).) Indeed, while the savings capacity of retail demand response programs is increasing, the Federal Energy Regulatory Commission stated in its 2021 “Assessment of Demand Response and Advanced Metering” that “[t]he total number of customers enrolled in retail dynamic pricing and retail demand response programs is still relatively low.” See The FERC’s “Assessment of Demand



Response and Advanced Metering” at 17-18, 46 (<https://www.ferc.gov/medial/2021-assessment-demand-response-and-advanced-metering>). This low, but increasing, participation rate shows the potential future growth of such programs.

However, implementing demand response programs via smart appliances may expose energy providers to patent infringement liability. The recent verdict in *Ecofactor, Inc. v. Google, LLC* highlights this potential. There, the jury found that Google’s Nest smart thermostat infringed claims of two Ecofactor patents directed to changing thermostat settings based on requests from a utility to reduce energy usage. (Case No. 6:20-CV-00075 (W.D. Tx.))

The defendant in *Ecofactor* was not a utility company—the plaintiff sued Google, the manufacturer and seller of the Nest smart thermostat. But, relevant claims were drawn to technology clearly applicable to demand response programs. Specifically, one of the

patents asserted included method claims drawn to remotely controlling a smart thermostat based on a “demand reduction request.” (U.S. Patent No. 8,738,327 at Cl. 11.) Similar method claims could hypothetically be asserted against utility companies in future lawsuits. Accordingly, the *Ecofactor* verdict is indicative of the type of liability potentially faced by utility companies executing residential demand response programs via smart thermostats and other internet-connected appliances.

Patents like the ones at issue in *Ecofactor* appear to be increasing. As shown in the chart below, patent publications mentioning “demand response” have increased drastically over the past twelve years.

Conclusion

Utility companies should be aware of the potential for patent litigation exposure that could accompany residential demand response programs.

With the increased usage of smart thermostats, and the advent of residential demand response programs, energy providers should be cognizant of the potential liabilities introduced by such programs. As internet enabled energy production and control technology patent filings increase, the associated litigation activity will also gain speed. This growth should put companies on notice to be prepared to protect their own IP and to defend themselves against IP enforcement actions from rivals and non-practicing entities.

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