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Poster Title: Weekly Clean Energy Forecast

Abstract: Sabreez has developed a Clean Energy Factor (CEF) that reports when electric power is cleaner each day in consumer-friendly terms, the "Wind Number" and "Solar Boost." The CEF is inversely proportional to wholesale real-time energy prices as well as carbon emissions ([url https://www.sabreez.com/lmp_graph](https://www.sabreez.com/lmp_graph)), so it illustrates that clean energy costs less as a compelling value proposition to promote load shifting. In California, our Application Programming Interface (API) processes real-time data from the California Independent System Operator (CAISO) and energy forecast data from TESLA, Inc. to produce a 7-day advance forecast. Our Weekly Clean Energy Forecast (WCEF) API can be integrated into consumer-facing applications to extend the offer of automation ([url https://www.sabreez.com/forecast_plot](https://www.sabreez.com/forecast_plot)). The CEF peaks each day and each week when energy is cleanest, and the real-time CEF and weekly forecast APIs are engaging ways to promote time-of-use rate adoption. Some consumers may choose to manually run their appliances when energy is cleaner, use the delay button, or charge their vehicle based on the stimulus. Program managers can use our APIs to increase consumer engagement. The inverse correlation between the CEF and wholesale pricing has been well-documented since the Wind Number was presented at the 2017 BECC Conference. Program managers can offer the stimulus, then combine a user's smart-meter data with our database to provide a normative report. The consumer's CEF can be offered as a game to reinforce load-shifting behavior. Utilities and other demand response providers that participate in wholesale markets can encourage load shifting with real-time messaging to reduce costs as well as emissions. Specific use cases can be applied for thermostats, appliance load shifting, pool pumps, and vehicle charging. Although the CEF is designed to integrate renewables by offering a compelling value proposition to consumers when energy is cleanest each day, the CEF is also lower during peak-demand periods when rates are higher. Over time, the message that clean energy costs less should create a sustainable value proposition and lasting behavior change. Sabreez will be engaging utility and smart home stakeholders in California's energy system to offer the WCEF to educate consumers about the new default time-of-use rates. The results of our Spring-Summer marketing campaign will be presented at the 2019 BECC Conference.