ArchSight Energy Solutions

21st century smart-energy insights to expand the impact of renewable energy

Prices Blowing in the Wind

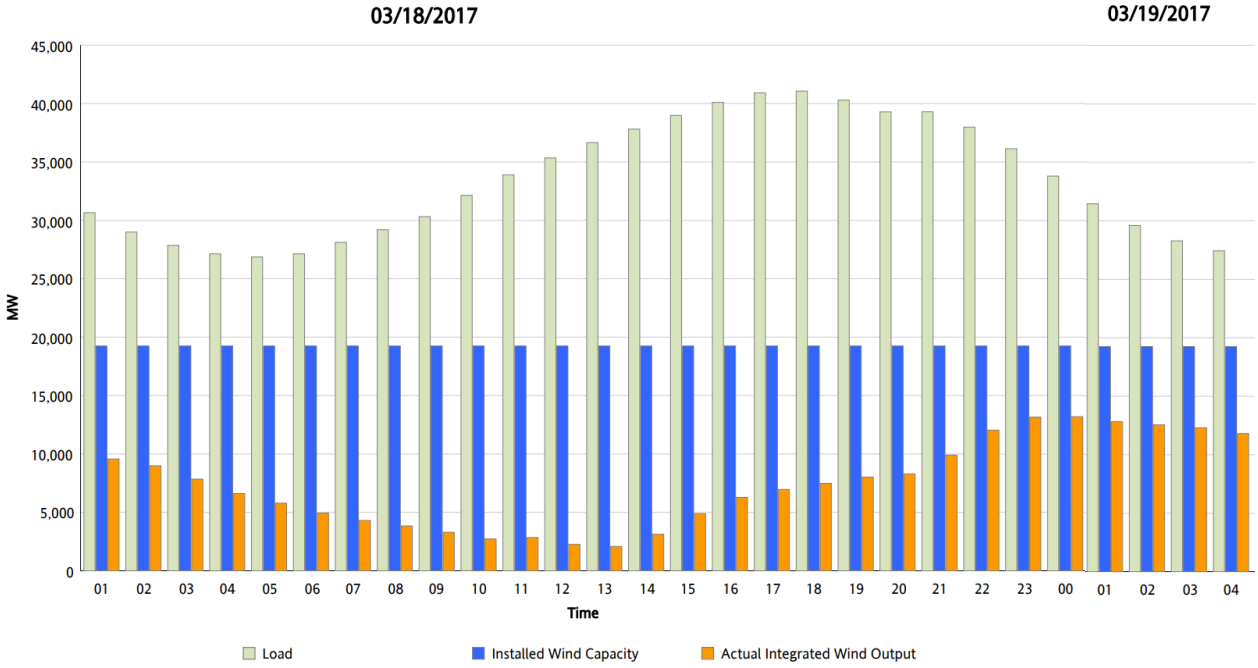
Sample Day:
March 18, 2017

Time	12PM	6PM	12AM	3AM
Load minus Wind Output	33GW	34GW	20GW	16GW
Power Prices ($/MWh)	$23	$29	$15	$5

In one hour during March 2017, wind energy was powering 50% of the energy usage in Texas! The increase in renewable wind generation has led to large fluctuations in power prices.

Many power consumers do not realize that they can support renewable energy & save money by shifting energy usage to off-peak hours.

Consuming the same amount of energy at 3AM instead of at 6PM would have reduced power costs by over 80%.



Commercial Case Study: Load Shifting

Demand-Pricing for Laundry Facility

SpinCycle Laundry operates a 50-unit washing & drying facility in Austin. They have up to 300 customers per day, but many of their machines are near capacity after work around 6PM.

SpinCycle's real-time variable cost per wash/dry nearly doubles from 40 cents per wash/dry to 80 cents per cycle during peak times, between 4PM and 7PM. The price trends in our app suggests SpinCycle Laundry should employ demand-based pricing during peak hours to increase revenue and reduce costs.

	Before	After
Peak Times	$2 per cycle	$2.25 per cycle
Other Times	$2 per cycle	$1.75 per cycle
Average Revenue	$2.00 per cycle	$2.05 per cycle
Average Electricity Costs	$0.70 per cycle	$0.65 per cycle

$21,900 Annual Savings

Other Commercial & Industrial Applications: automated processes in large plants

Residential Case Study: Smart Home

The Smart Home Dishwasher

The Baker Family uses the dishwasher 5 times per week following dinner, usually around 7PM.

The average power price during this peak time is $35/MWh, resulting in an annual electricity footprint of $120 just from running the dishwasher.

Mrs. Baker installs the app and selects the following option: run my dishwasher by 7AM tomorrow

By integrating the app with the smart dishwasher, the app will use historical price trends and predictive analytics to calculate the optimal time to run the dishwasher. This time will depend on the power market during that specific day, but it will be at a lower price when the wind is blowing.

The dishes will be ready when the Bakers wake up in the morning.

Result: The average power price used by the Baker Family to run the dishwasher drops from $35/MWh to $15/MWh, saving them $69 per year.

Other Smart Home Applications: Electric Vehicle Charging, Laundry