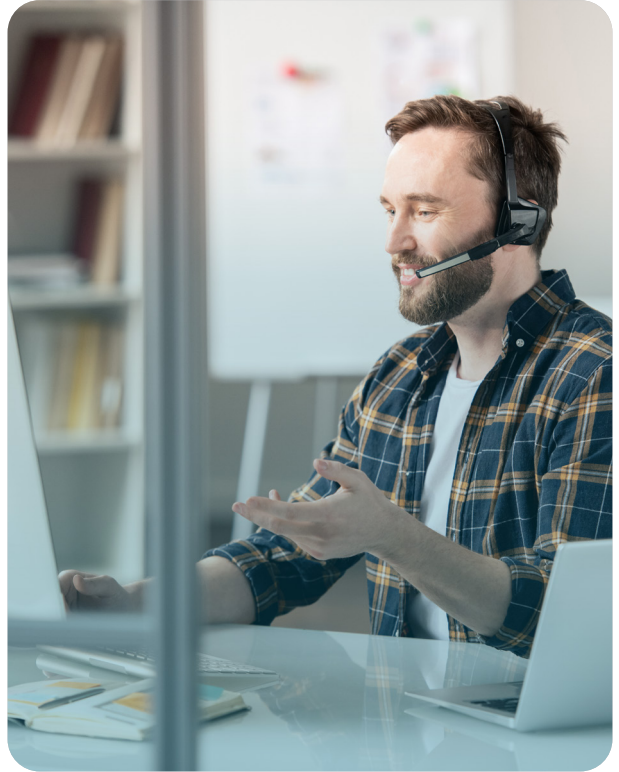


Virtual Commissioning™ (VCx™) Program

Cultivating savings and relationships with hard to reach organizations

Power TakeOff's Virtual Commissioning™ (VCx™) Program provides utilities with a mass market solution for hard-to-engage small to medium sized businesses (SMB) and public institutions.

Leveraging interval meter data to pinpoint operational saving opportunities, Power TakeOff virtually and remotely engages hard-to-reach non-residential customers with pinpointed low to no-cost efficiency solutions. There are no program costs, on-site visits, or enrollment forms that simplifies the participation process.



VCx™ Highlights

7.3

Year effective useful life.

13.7%

Average annual savings per SMB participant.

31

Average project days.

70%

VCx™ participants have no prior DSM participation.

100%

Pay-for-performance program cost.

57%

VCx™ participants have peak demand <100kW.

Challenge

Although SMBs and public institutions often account for >80% of all non-residential accounts, this market is frequently underrepresented as a percent of total non-residential portfolio savings for utilities. The sheer volume of SMB accounts, minimal access to capital, remote locations, facility leasing, and limited knowledge of energy efficiency all contribute to challenges serving these hard-to-reach customers.

Innovative Solution

Utility investment in advanced metering infrastructure (AMI) has created new opportunities to better understand the needs and opportunities of SMBs through remote assessment. Capitalizing on this opportunity, Power TakeOff's software and analytical platform distinctly and confidently identifies unusual energy usage data abnormalities as leading indicators of efficiency savings potential.

Trained energy advisors individually review every identified account to verify the opportunity, develop customized recommendations, and quantify savings potential. These consultants then virtually engage each individual, pinpointed account to deliver personalized solutions.

M&V 2.0 Evaluation

Power TakeOff measures VCx™ Program savings using regression models, either on an hourly or daily basis. Whole building savings analysis with only monthly, billing level data is typically limited to identify savings in excess of 10% of total consumption due to confidence restrictions. However, the significant granularity provided in daily or hourly models mean that Power TakeOff can confidently identify savings that are as low as 3% of annual consumption in most situations. To ensure appropriate model fit, Power TakeOff analyzes a combination of adjusted R2, CV(RMSE), and savings uncertainty metrics with appropriate thresholds to uniquely verify every participant's savings model before any energy savings are claimed.


The savings modeling calculations also identify the extent that each driver of consumption - such as weather and occupancy - impact energy consumption at each site. The company continuously monitors savings from all participants and routinely runs M&V modeling throughout the program year to provide utility partners accurate up-to-date forecasts and monthly invoices. At the end of the program year, each participant's savings model is finalized for an invoicing true-up and to provide program year savings data to third-party evaluators.

Demonstrating the Value of AMI

Power TakeOff helps utility partners capitalize on AMI investment by directly creating customer relationships through targeted, data driven opportunities. Using our machine learning algorithms, we can identify the extent to which non-residential customers are likely to benefit from engagement and have the best grid impact.

A unique benefit of the analytical prospecting approach is Power TakeOff's ability to customize target markets to the utility partner needs. Power TakeOff has successfully modified the VCx™ Program to target specific industry verticals (e.g. schools and multi-site retail), in addition to geographic targeting, to help utility partners meet regulatory and grid needs.

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Utility Scale Results

The VCx™ Program has multiple years of third-party evaluated success scaling from 2 GWh in a 2017 pilot to 15 GWh in 2019 with a single utility partner. Today, over 17 utilities across the U.S. and Canada are delivering or in the process of launching the VCx™ Program.

In 2018 and 2019, Power TakeOff successfully demonstrated the ability to accommodate mid-year program saving increase requests based on utility DSM portfolio adjustment needs. This value-add flexibility, made possible by the average 31-day VCx™ project cycle, provides utility partners insurance to DSM uncertainty as seen with COVID-19.

