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Owl Energy Technologies contribution to Doubling Energy Efficiency Savings

We have attached materials introducing Owl Energy Technologies motor controllers and their contribution to Doubling Energy Efficiency Savings.

We will be participating in the meeting remote and on-line.

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Additional submitted attachment is included below.

IEPR Commissioner Workshop on Doubling Energy Efficiency Savings

Thursday, June 7, 2018 10:00 a.m.
California Energy Commission
Sacramento, California

Subject:

Owl Energy Technologies contribution to " Doubling Energy Efficiency Savings"

With the introduction of Owl Energy Technologies' Intelligent motor controllers, California now can investigate and plan for electricity savings for tens of thousands of customer three phase applications.

Page 2	Introducing Owl Energy Technology Intelligent Motor Controllers
	Our Motor Controllers With Various Application Types for California
Page 3	Application Types - Three Phase - Estimated Electricity Savings % and # of Customers Estimates
Page 4	Estimated Demand savings (KW) by application type(s)
Pages 5 and 6	Demand Management is available and Demand Response needs reduced for CA power customers December 2017

We welcome the opportunity to provide additional materials for clarifications and discussions.

Respectfully and Thank you,

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Introducing Owl Energy Technology Intelligent Motor Controllers

New Energy Efficiency, Electricity Reductions, for California Electricity Providers

Our motor controllers will provide 25% electricity usage reductions for three phase Air Conditioning, HVAC and Refrigeration for California power company business and/or commercial/industrial customers.



Our Motor Controllers are DERs (Distributed Energy Resources) in the Energy Efficiency category.



Size 3	Size 2	Size 1
Up to 400 Amps	Up to 200 Amps	Up to 100 Amps

Additional Business Applications include: (approx. 12 to 18% electricity savings)

Oil Field pump jacks

Escalators

Industrial/ Factory and Agriculture

Pulverizers, presses, metal milling and grinders, plastic injection molding, conveyors, wood working, Agriculture equipment and more.

Our motor controllers provide Variable Voltage Drive (VVD) capabilities with 1) Motor start-up spike reduction, 2) Soft start and 3) Reduced electricity usage.

They are and have been in use worldwide for ten (10) years and have proven their electricity reduction capabilities.

Our Motor Controllers With Various Application Types for California

Application Types - Three Phase - Estimated Electricity Savings % and # of Customers Estimates

Application (s) Three phase alternating current motors	Estimated electricity savings		Estimated # customers
Air conditioning systems: HVAC, packaged, roof top, etc.	25%	Air conditioning systems are very high contributors to summer demand issues	> 100,000
Refrigeration systems	25%	Super markets, many three phase refrigeration units used	100,000
Refrigerated Warehouses	25%	Ref: 2 CA DR reports	Inventories needed
Air compressors	25 ??		Inventories needed
Oil Field pump jacks	17%	See Application Brief	100,000 expected, could be 300,000 to 400,000
Escalators	12 to 18 %		Inventories needed
<u>Industrial/ Factory and Agriculture</u> Pulverizers, presses, metal milling and grinders, plastic injection molding, conveyors, wood working, Agriculture equipment and more	10 to 18%		Inventories needed

With the introduction of our motor controllers and their capabilities to reduce electricity usage for the above application types, inventories are now appropriate and can be targeted to sub-stations with possible summer demand issues.

Our Motor Controllers With Various Application Types for California

Estimated Demand savings (KW) by application type(s)

**** Inventories to be done using areas/substations with known summer demand issues

Applications	Motor Volts	Motor HP	Electricity Generated	Estimated Demand (KW) savings @ 25%	# of Installations Examples ****	Estimated Savings
A/C systems	208/220 volts	25 HP*	NA	1.3 KW	30 K	39 MW
	460 volts	40 HP*	NA	4.5 KW	20 K	90 MW
Refrigeration Systems	208/220 volts	25 HP*	NA	1.3 KW	15 K	9.5 MW
	460 volts	40 HP*	NA	4.5 KW	10 K	45 MW
Refrigerated Warehouses	208/220 volts	25 HP*	NA	1.3 KW	1 K	1.3 MW
	460 volts	40 HP*	NA	4.5 KW	1 K	4.5 MW
TOTALS					77 K	189.3 MW
		* Estimated Average size by volts and HP				

Oil Field Pump Jacks

Applications	Motor Volts	Motor HP	Electricity Generated	Estimated Demand (KW) savings @ 17%	# of installations ****	Estimated Savings
Oil Field pump jacks	460 volts	50 HP*	Yes	5.7 KW	40 k	228 MW
	460 volts	75 HP*	Yes	9 KW	30 k	270 MW
	460 volts	100 HP*	Yes	12 KW	20 k	240 MW
TOTALS					90 K	738 MW
		* Estimated Average size by volts and HP				

Application (s) also to be inventoried: are eligible for our motor controllers	Estimated electricity savings
Escalators	12 to 18 %
Industrial/ Factory and Agriculture Pulverizers, presses, metal milling and grinders, plastic injection molding, conveyors, wood working, Agriculture equipment and more	12 to 18%

**Demand Management is now available And More
Financially Attractive With Demand Response
needs reduced for California Power Companies and
their business customers.**



**No work is required once our Motor Controllers are
installed. Summer season HVAC usage will include
these saving benefits for
Business Customers and Power Companies!**

Part I - Overview

As each summer season nears, U.S. electricity providers shudder.

Huge increases for electricity occur as their customers, especially commercial and industrial, turn on their air conditioning and HVAC (Heating, Ventilation and Air Conditioning) systems.

Few U.S. electricity providers do not have significant "Demand Response" efforts on going to help ensure that their customers' electricity needs are met.

These demand response efforts have customer and power companies contract for the companies' to commit to short term lead time, 2 hour, and or longer term lead time, 10 hours or more, adjustments of their electricity usage.

Both the companies and the power companies must take agreed to actions for these reductions to be in effect.

Now, that has all changed.

What if each three phase alternating current air conditioning and or HVAC or Roof Top Unit (RTU), contributed to lower demand just by being turned on for each approaching summer season?

The technology and capability for this has been in use successfully worldwide for ten (10) years and while not known in the U.S., is available now.

With the "Intelligent Motor Controllers" represented by Owl Energy Technologies, each installed air conditioning, HVAC and or RTU system will deliver saving of 25% just by being turned on.

Now, the first incentive for companies to consider these capabilities is their reduced electricity bills.

In addition, many power companies provide rebates based upon KWh reductions for these type of motors, decreases provided by these motor controllers.

A known rebate example is \$0.16 for each KWh reduced, providing a Return on Investment (ROI) that could pay for the motor controllers in one summer season.

Demand Management is now more available and economical and Demand Response needs are Reduced

Part Two - Set Up

For each Air conditioning/HVAC and or RTU customer candidate:

Motor controllers are sized by motor label Voltage, HP, amps and KW and type of compressor: reciprocating, scroll, etc.

Prior to motor controller installation, measurements can be taken for existing motor Start-up spike and KW usage.

Motor controllers are installed between power supply and the motor. The installation is very straight forward and would be accelerated with pre-installation review and experience.

With experience and pre-installation planning: 3 to 4 hours or less.

Measurements can be taken for motor Start-up spike and KW usage with the motor controller and compared to provide the expected Demand Reduction contribution.

Installations, with weather conditions considerations, can be done any time of year.

When the motor controlled air conditioning, HVAC and or RTU system are made operational for each summer season, the anticipated and measured Demand Reductions will be seen.

No other work or efforts are required by either the customer, Con Ed or the local power company.

For Con Ed or the local power company, as installations are completed, a table of old and new Demands can be created to manage Demand Reduction needs for each summer season.

Our "Intelligent Motor Controllers" provide Soft Start and Energy Optimizing and include Variable Voltage Drive (VVD) capabilities.