



## Mid-South Engineering Company

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### Electrical Billing Parameters

By: Don Elrod, P.E.

Various factors determine your plant's electric bill. The typical electric bill contains several terms such as fuel charge adjustment, KW demand, power factor etc. which can be quite confusing. An understanding of these terms will not only demystify this issue but may also help to control and reduce electric utility bills.

#### Kilowatt-hours

This is a measure of the electrical energy which has been used during the billing period. This information is commonly found from the utility company's meter.

#### Fuel Charge Adjustment

This factor is based upon the cost of the fuel used to produce power during a given month and may be adjusted each month.

#### Kilowatt Demand

Demand is based upon how much power is consumed during a window of time, usually 15 or 30 minutes in duration. The demand reflects the maximum or peak requirements averaged over the measurement window. Brief high peaks such as those caused by the starting of large motors are averaged because the starting time is very short compared to the demand interval. This information is obtained from the utility's meter, which keeps track of the highest demand since the last time the meter was read.

This information is in turn used by the Utility to determine how much electrical capacity has to be made available in terms of generators, transformers, cables etc. in order to meet the customer's maximum requirements.



#### Power Factor

This is a widely misunderstood term. The following capsule summary should throw some light on this matter.

The current required for the operation of electrical equipment such as transformers, motors, fluorescent lighting fixtures etc. consists of two parts, namely the magnetizing current and the working current. The total (or apparent) current is the vector summation of magnetizing and working currents. Power factor is defined as the ratio of the working current (or power) to the total or apparent current (or power) and is expressed as a decimal.

As the name implies, magnetizing current is utilized to "magnetize" electrical equipment in order to make the induction phenomenon possible. This current may either be supplied by the utility or by means of capacitors installed in the plant. When the utility supplies the magnetizing current, it has to size its electrical equipment (transformers, cables etc) to handle this current. In addition to increasing power losses this can create other problems such as voltage drops. Many utilities therefore impose power factor penalties should the plant's power factor fall below a predefined level. The solution to avoiding these penalties is to install power factor correction capacitors within the plant. Connecting capacitors at strategic locations within the plant will not only help to avoid power factor penalties but can realize other benefits such as releasing of system capacity, improvement in voltage regulation etc.



## The Last Revision

By: Unknown Author

The drafter and the surveyor  
Possess Great skill and vision  
At least they are until they hear  
That hated word - REVISION!  
The surveyor with practiced eye  
Surveys the grand design  
The Drafter then, expertly draws  
Each complicated line.  
"Complete", they sigh contentedly  
"Miraculous Precision"  
Oh Optimist! Tomorrow brings  
Catastrophe! REVISION!  
Revision One adds this new piece  
Revision Two improves it  
Revision Three makes it just right  
Then revision Four removes it.  
"You can't do this, you can't do that"  
"We'll wait for a decision".  
"But in the mean time just revise  
That last revised revision".  
"Revise, Revise", the very word  
Fills surveyors with dread  
Tho' die they must, they'll be revised  
To make quite sure they're dead.  
They'll hope that God's no engineer  
When He makes His decision  
If once they win their wings they hope  
There'll be no last - REVISION!

## Things You Keep

By: Unknown Author

These are my thoughts, they make me sound old, old and tame, and dull at a time when everybody else is risky and racy and flashing all that's new and improved in their lives...new careers, new thighs, new lips, new cars. The world is dizzy with trade-ins. I could keep track, but I really don't think I want to.

I grew up in the fifties with practical parents - a mother, God bless her, who washed aluminum foil after she cooked in it, then reused it. A father who was happier getting old shoes fixed than buying new ones.

They weren't poor, my parents, they were just satisfied. Their marriage was good, their dreams focused. Their best friends lived barely a wave away. I can see them now, Dad in trousers and tee shirt and Mom in a house dress, lawn mower in one hand, dishtowel in the other. It was a time for fixing things - a curtain rod, the kitchen radio, screen door, the oven door, the hem in a dress.

Things you keep. It was a way of life, and sometimes it made me crazy. All that re-fixing, reheating, renewing, I wanted just once to be wasteful. Waste meant affluence. Throwing things away meant there'd always be more.

But then my father died, and on that clear autumn night, in the chill of the hospital room, I was struck with the pain of learning that sometimes there isn't any 'more.' Sometimes what you care about most gets all used up and goes away, never to return.

So, while you have it, it's best to love it and care for it and fix it when it's broken and heal it when it's sick. That's true for marriage and old cars and children with bad report cards and dogs with bad hips and aging parents. You keep them because they're worth it, because you're worth it.

Some things you keep. Like a best friend that moved away or a classmate you grew up with, there's just some things that make life important...people you know are special...and you KEEP them close!

### Kimble Garrett Named Vice President



The Mid-South Engineering Company board of directors is pleased to announce the promotion of Kimble Garrett to Vice President, Cary Division.

Kimble is an industry veteran of over 25 years and has been with Mid-South since 2008. He brings a wealth of project and managerial experience to Mid-South having worked for Weyerhaeuser at Sutton, Virginia, Wabi America, Inc., Diffenbacher North America and for CPM prior to the purchase by Mid-South.

In making the promotion announcement, Lee Murphy, Mid-South president, said, "I am excited to have someone with Kimble's experience on the Mid-South team to further build on our strong reputation for customer service and results delivery. Kimble has demonstrated success and has been instrumental in the development of the operation in Cary which has grown from 8 employees when he came on board to the current employee level which exceeds 60. Kimble will continue to fill an important role in our company managing the Cary office in its service to our clients nationwide."



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