



We are changing rates

Losing the Demand Charge

- What does this mean?
 - What changes?
 - What is Load Factor?
 - I have questions!!!
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What does this mean?

- **The current BTU rates for commercial customers have two billing components; energy (kWh) and demand (kW) – we are losing the demand charge and reconfiguring the way we calculate the bill.**
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Losing Demand Billing

- In the past one of our billing components has been the Maximum kW (Demand) reading of the month. We charged a Demand Fee per kW.
 - Make Note: We are still reading Demand and the kW read will appear on the bill. However, we will not charge a fee for kW. Instead it will be plugged into a formula that will tell us how efficiently the facility uses electricity compared to their full potential usage.
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Energy

- BTU measures energy as kWh or Kilowatt Hours

- kWh is a measure of energy over a period of time

- (Power x Time = Energy)

100 watts x 1 hour = 100 watt hours

Watts-hours are a very small measurements so we calculate in Kilowatts which is 1000 watts.

100 watts / 1000 = .1 Kilowatts or .1 kWh

Demand

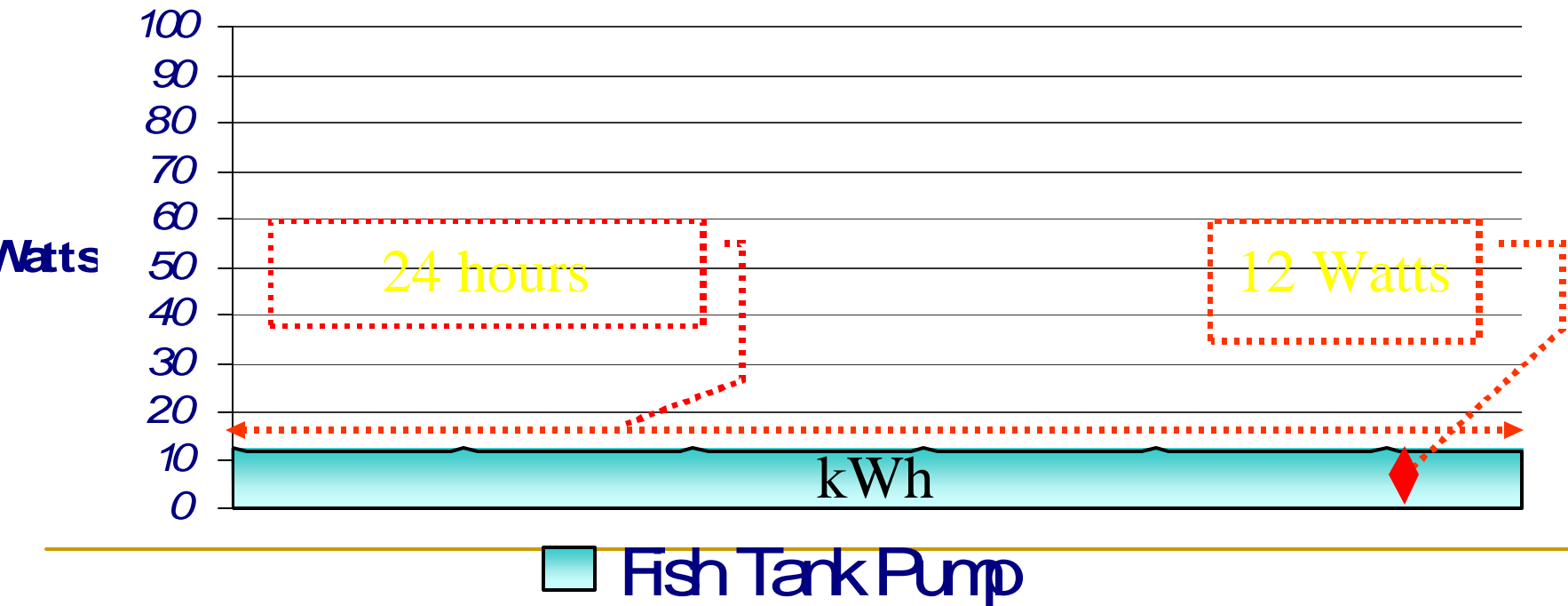
- **Demand is expressed as kW or Kilowatts**
 - This is a measure of energy at one moment in time
 - A snapshot during peak usage
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Examples

- The following slides are examples how we find kWh, kW and then how to calculate Load Factor. We used everyday household items as examples in hope that this would be easy for everyone to understand
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Fish Tank Air Pump Energy

A simple example of energy is the power flowing through a fish tank “air pump” as it runs – The measure of energy over the hours and days which the pump will run is kWh.



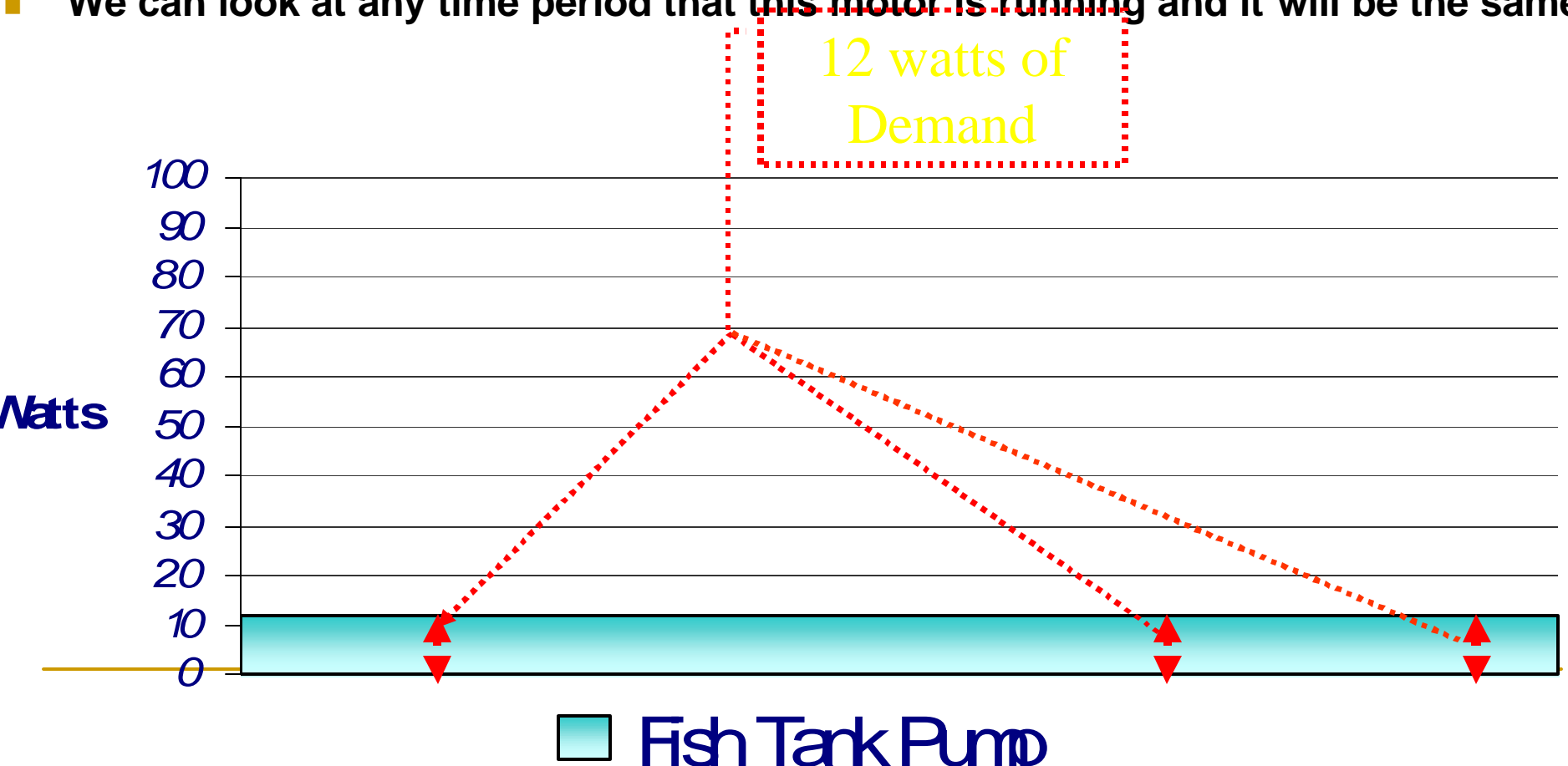
Energy - kWh

$$(\text{Power} \times \text{Time} = \text{Energy})$$

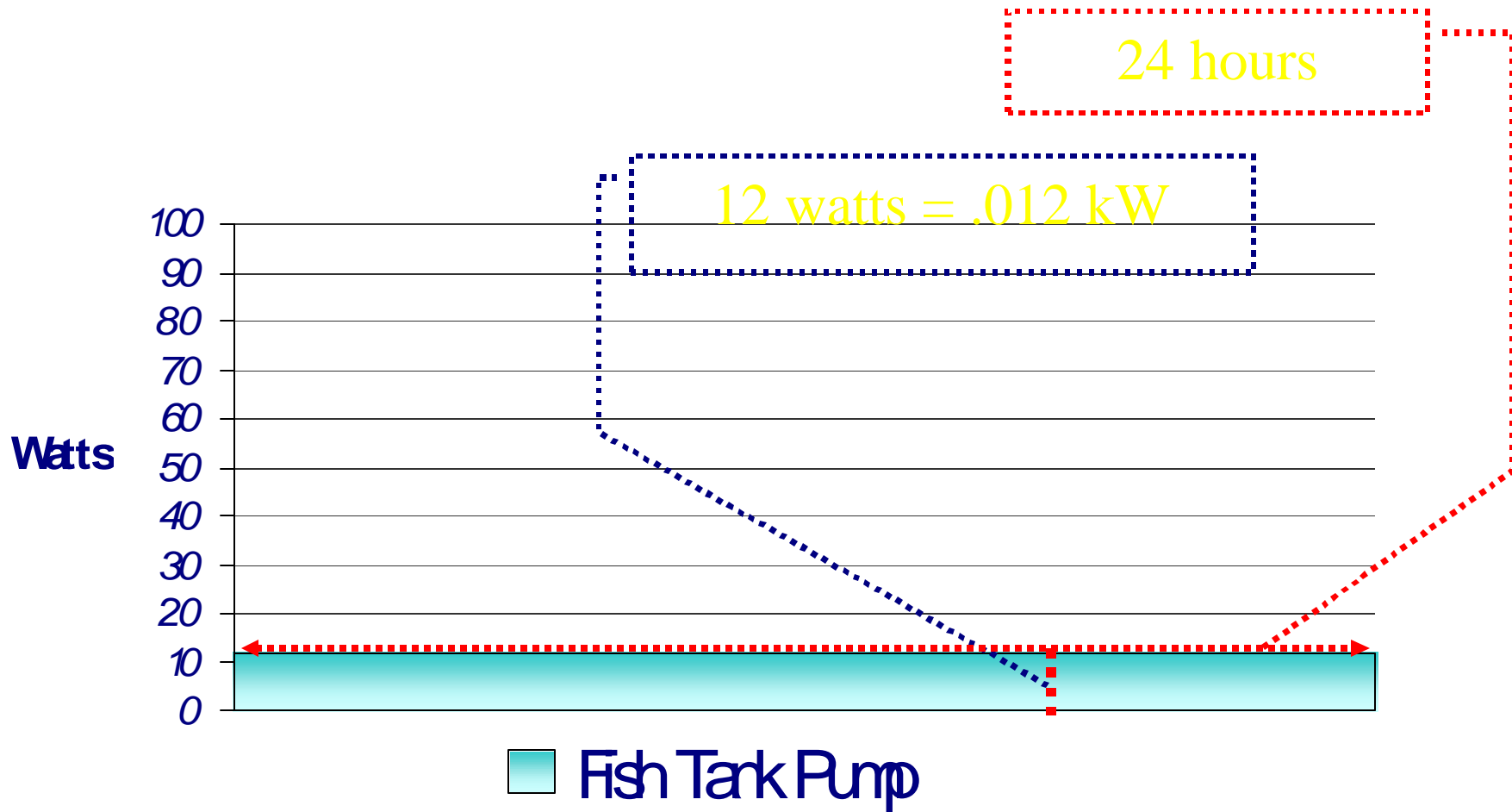
$$12\text{w} \times 24\text{h} = 288\text{w} \text{ or } .228\text{kwh}$$

Demand

- The fish tank air pump uses a small motor.
- The motor runs constantly
- We can look at any time period that this motor is running and it will be the same



Load Factor



Load Factor

Energy / (Demand x Time) = Load Factor

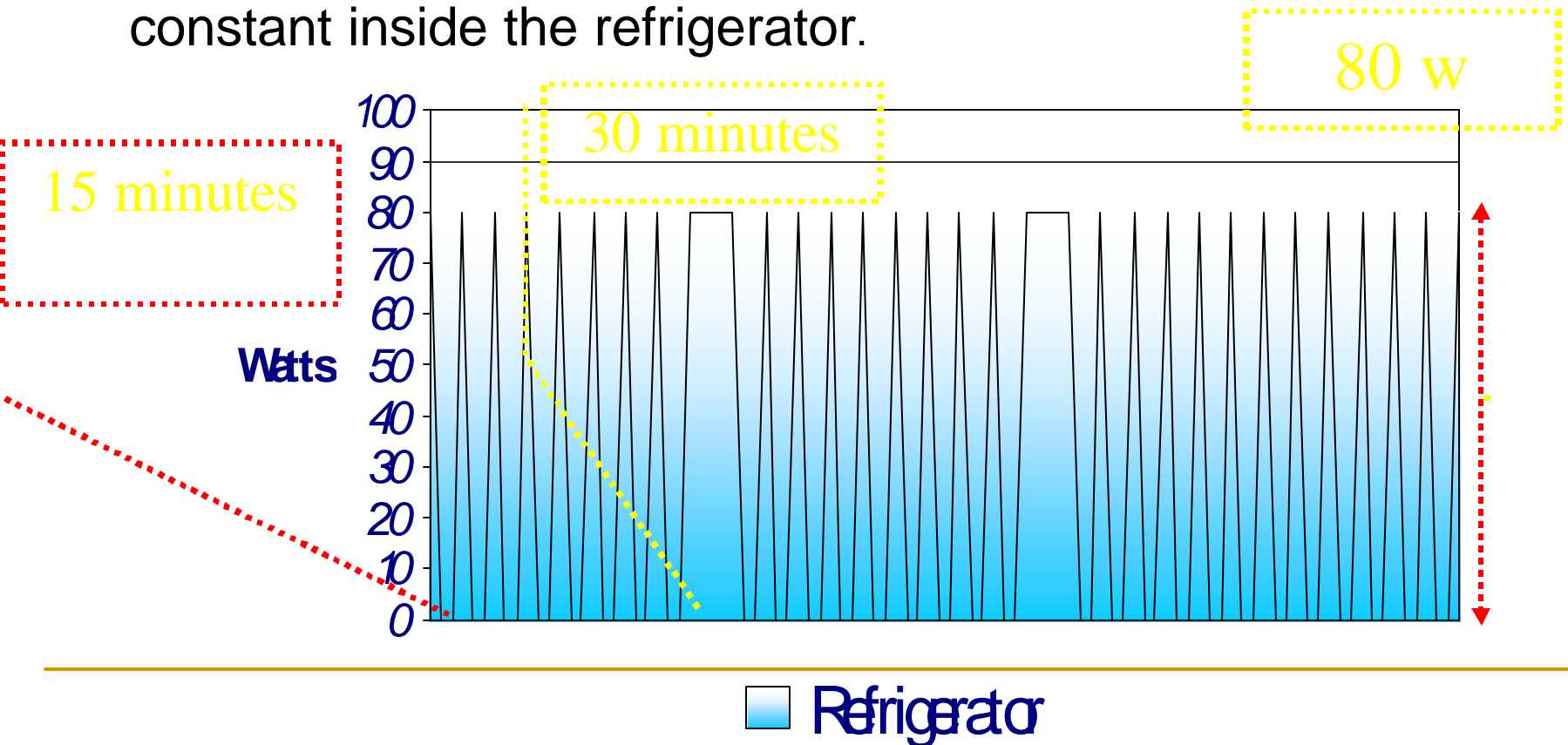
.228 kWh / .012kW x 24 hours = 1

Fish tank pump has

100% load factor

Refrigerator Energy

- A refrigerator is another great example - as it keeps the food and drinks inside cool. Motors run to create cold air. Those motors cycle on and off to keep the temperature constant inside the refrigerator.



Energy – kWh

$$(15 \times 28) + (30 \times 2) = 480 \text{ minutes}$$

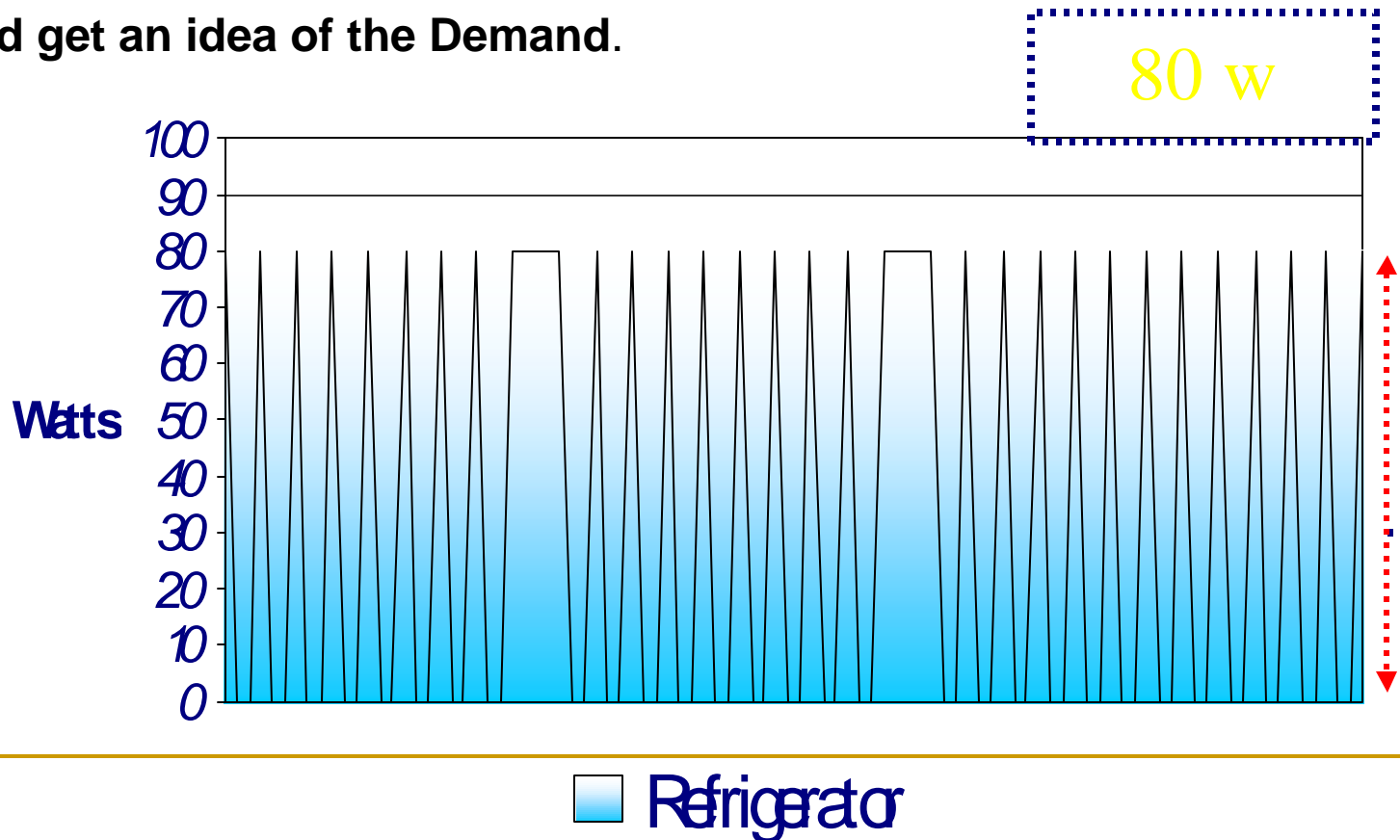
$$480 \text{ minutes} / 60 = 8 \text{ hours}$$

$$(\text{Power} \times \text{Time} = \text{Energy})$$

$$80 \text{ watts} \times 8 \text{ hours} = 640 \text{ wh or } .640 \text{ kWh}$$

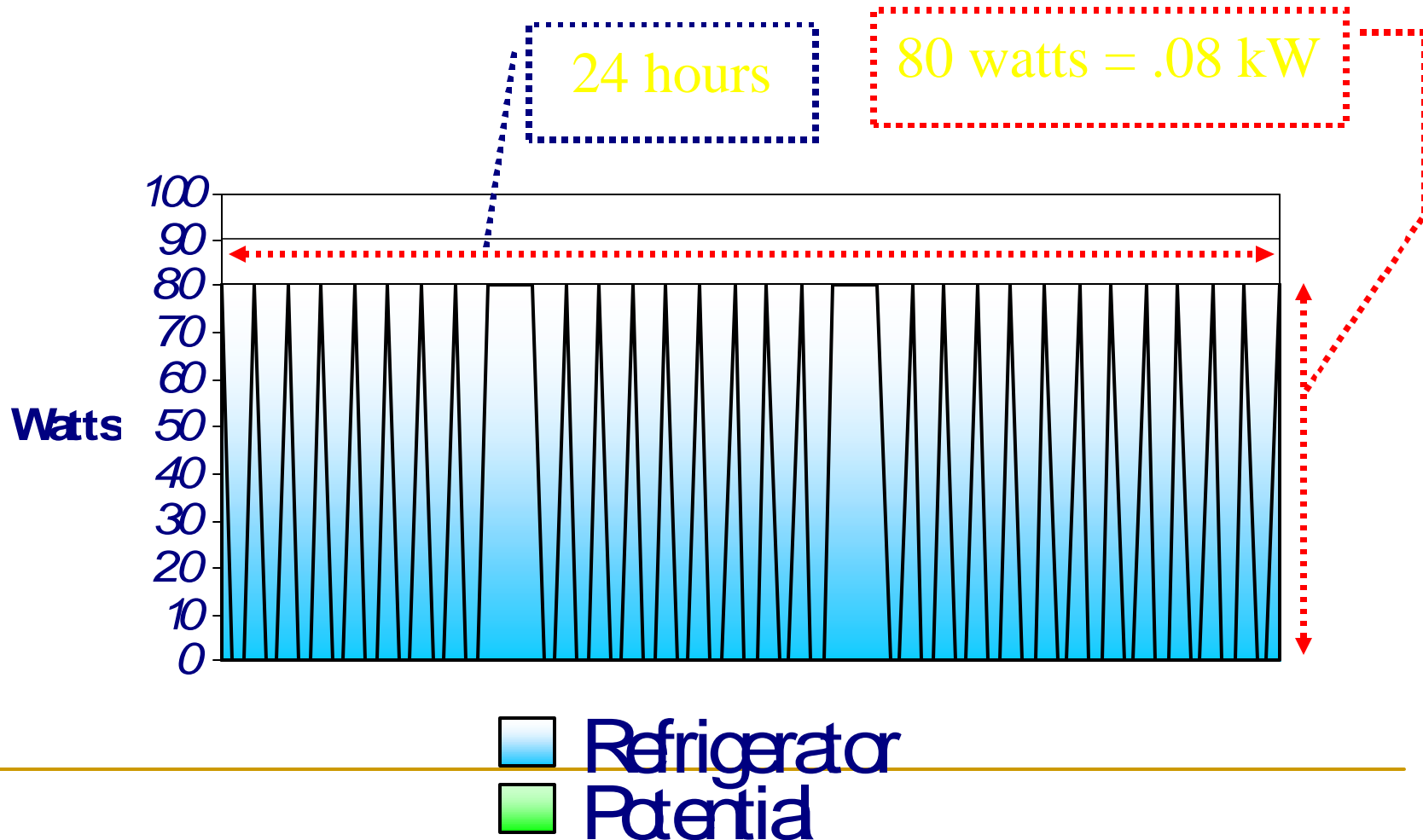
Demand

- The Refrigerator is a larger device with a much larger motor.
- The Motor for the refrigerator runs periodically
- Once the motor started running and we took a snapshot of the power it was using we could get an idea of the Demand.



Load Factor

Load Factor is the ratio between Actual Usage and Potential Usage



Load Factor

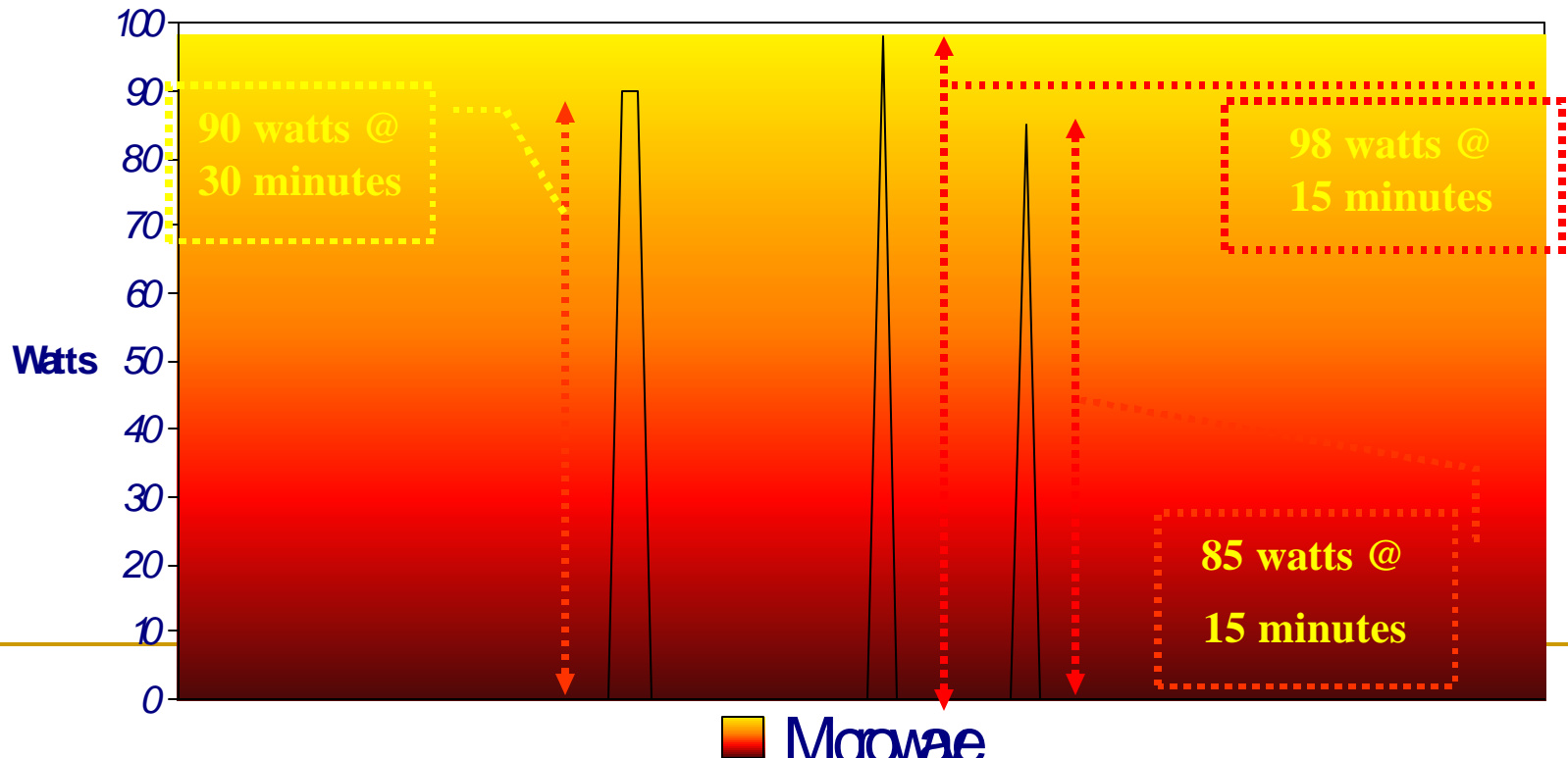
Energy / (Demand x Time) = Load Factor

640 kWh / (.08 kW x 24 hours) = .33

33%

Microwave Energy

- Our third example is a microwave which only runs when you need to cook something. Maybe you use the microwave twice to three times a day. As the microwave cooks your food it is using electricity measured with kWh.



Energy – kWh

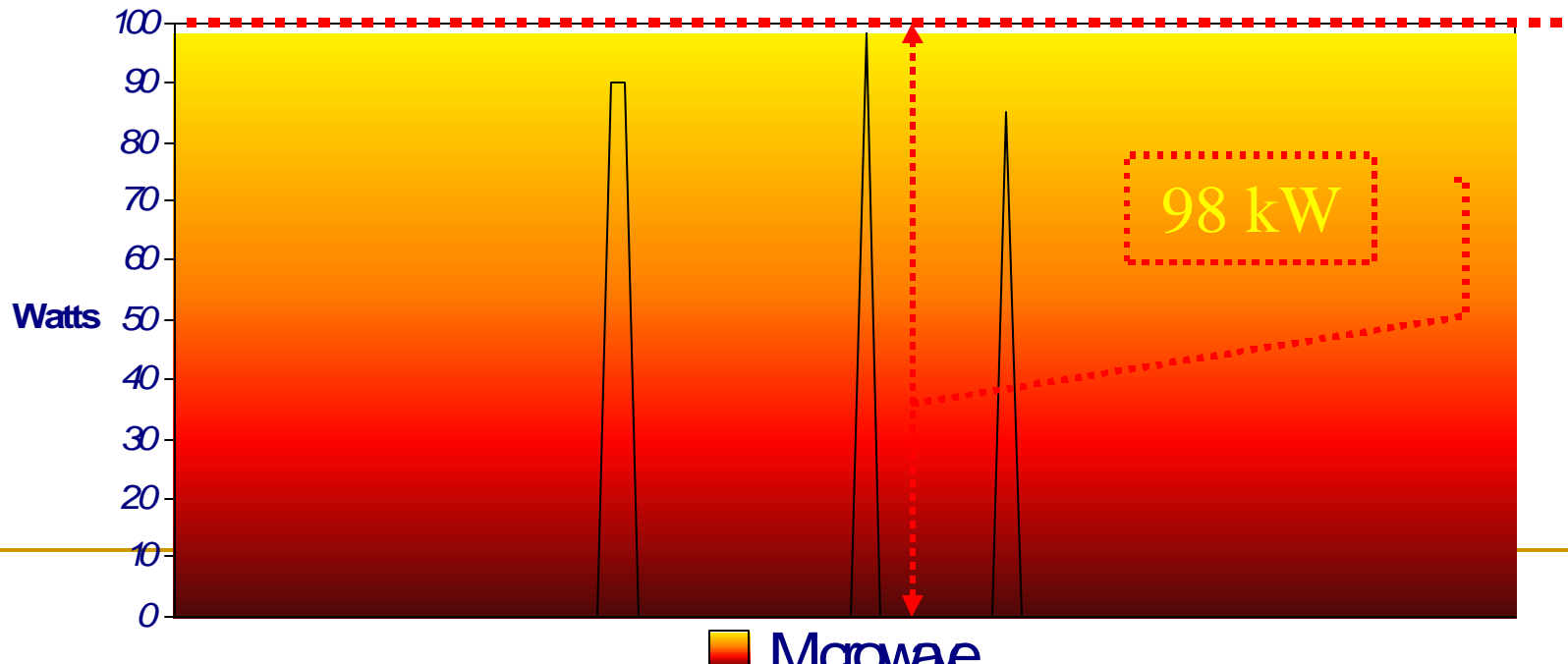
$$(98 \times .25) + (90 \times .5) + (85 \times .25)$$

Power x **Time** = **Energy**

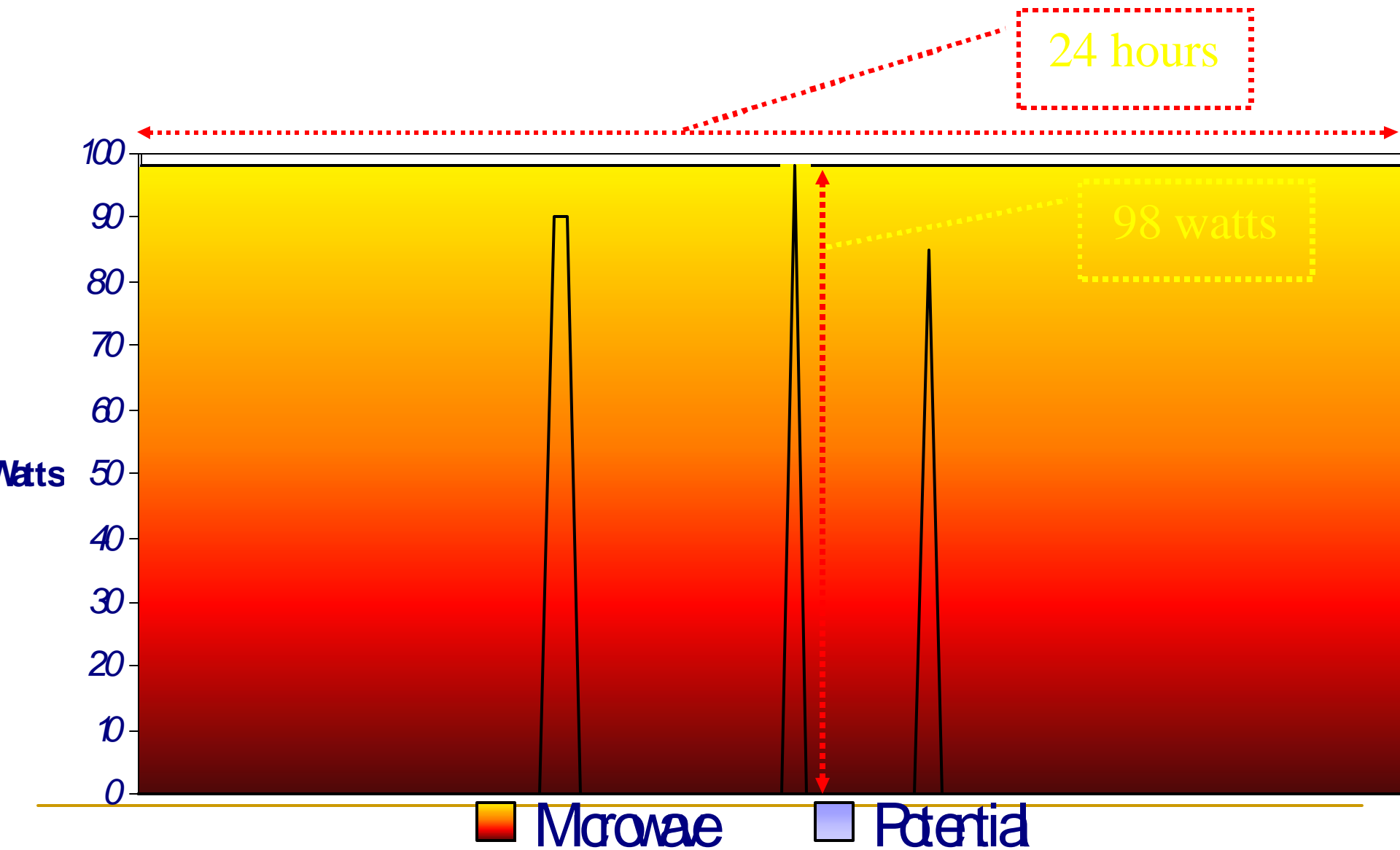
$$90.75 \times 1 \text{ hour} = 90.75 \text{ wh or } .09075 \text{ kWh}$$

Demand

- The microwave uses a lot of energy in a short period of time.
- Typically we don't use the microwave for more than 10-15 minutes a day.
- During the time that the microwave is being used it needs a certain amount of power to run. The level of power dictates how much energy it will need to cook.



Load Factor



Load Factor

Energy / (Demand x Time) = Load Factor

$$.09075 / (.098 \text{ kW} \times 24 \text{ hours}) = .03$$

3%

Who's the BEST ?

- Which scenario do you think BTU favors?

BTU favors the Highest load factor – which is the fish tank pump.

- Why?

Because we can plan our power production and fuel purchases more accurately.

What Changes?

- The only thing that changes for you is that you will now have one rate to multiply by the kWh.
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Most Important

- The important thing to remember is that Load Factor is the ratio of Energy used to Potential Energy
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Questions you'll be asked

- Why are you changing?

We are changing the way we calculate the bills to reflect changes in the market place and to give our customers more control of their spending without “penalizing” for a high demand spike

- What does that mean to me?

This means that you will be placed in a bracket with other customers who have a similar load factor. This change will also simplify the calculation of your bill by having the Energy only Rate.

- Are my rates going up?

The changes we've made to convert to an Energy Only Rate insured that each customer would receive a reduction in the Energy cost.

BTU ENERGY ONLY RATE

- This means that the customer will have one rate for kWh. This rate is based on their Load Factor.
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Load Factor Brackets

- 60+ %
 - 40-59%
 - 30-39%
 - 20-29%
 - Less than 20% don't qualify
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