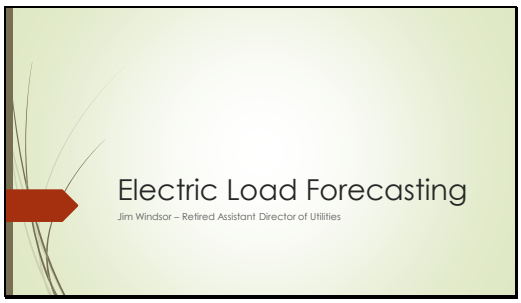
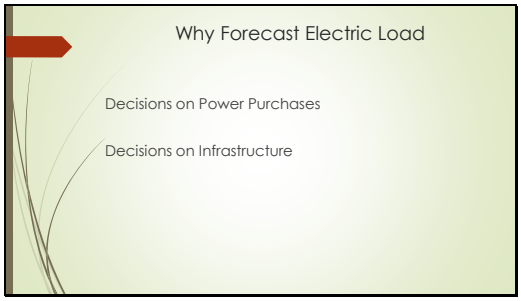
Presentation To City Council March, 2 2020 by J.R. Windsor

Slide 1



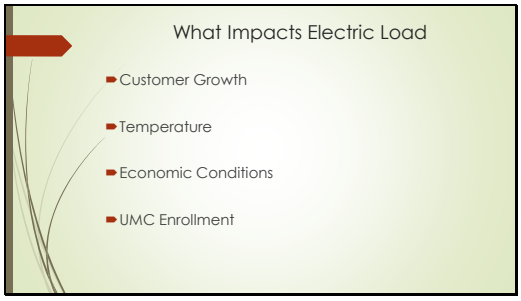
Slide 2



Long-term electric load forecasting is necessary so that decisions can be made about future power supply requirements and building of necessary infrastructure.

Those decisions take a significant amount of time to plan and implement.

Slide 3

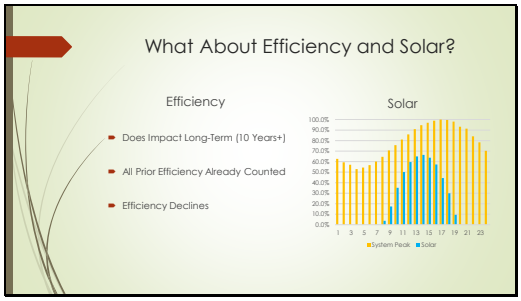


For Columbia, customer growth and temperature have the largest impact on electric load; however, there are other variables that need to be looked at…

In 2008, the recession had a dramatic impact because there were business closures and cutbacks that caused load to go down and customer growth to slow to almost zero.

Just a few years ago, there was a downturn in enrollment at the University. The result was fewer students to rent off-campus housing.

Slide 4



Efficiency will impact the long-term requirements but not the near-term. All prior efficiency is part of existing conditions. In addition, air conditioning efficiency is impacted by annual maintenance which often does not occur.

The Columbia electric system typically peaks in the late afternoon when the sun is going down. Utilities with high amounts of solar installations (Az for example) have found that peaks continue to increase.

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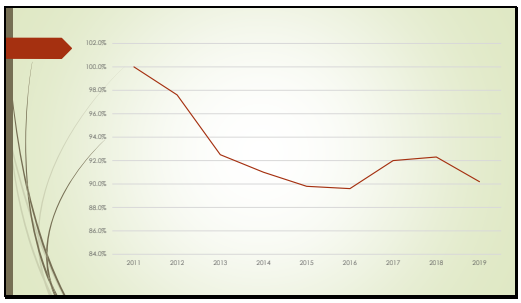
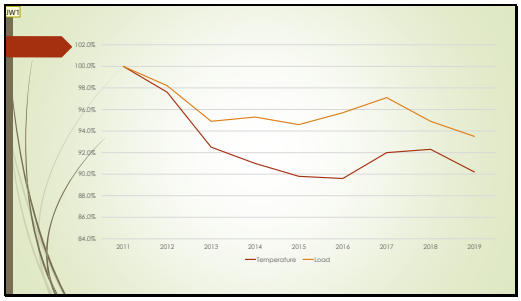


Some people may believe that Columbia's electric load is going down or at least not growing; however, if you understand what impacts electric load, you know that there is "latent" load in the system that will become apparent.

Slide 6



Temperature is the biggest driver of electric load. The lowest monthly peak in a mild April can be half the monthly peak of a hot July.

This graph illustrates that recent summers have not been particularly hot and correspondingly, loads have not increased.

In 2011, the high average hourly temperature during peak was 105. In 2012, the temperature was 102 and that was the last time a substation transformer failed

In subsequent years, the temperature during peak has stayed around 97 degrees.

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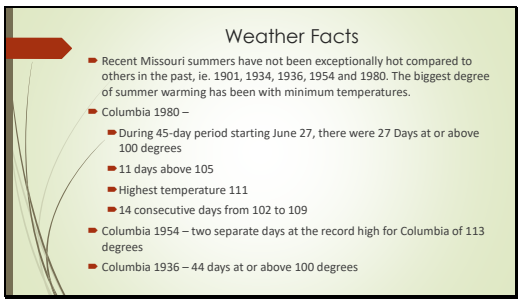
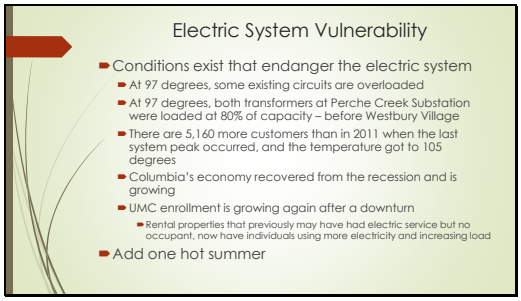


Here is some weather information that shows what hot weather really looks like

If you were here in 1980, you may remember how that summer was

Slide 8



Electric load forecasting allows us to do "what-if" scenarios. All of us take actions based on "what-if". Just think about why you have various types of insurance – what-if?

Based on my 30 years of experience in electric load forecasting, I am sure that the electric system is extremely vulnerable to a hot summer.

Our electric system infrastructure shouldn't be based on what-if it never gets above 97 degrees

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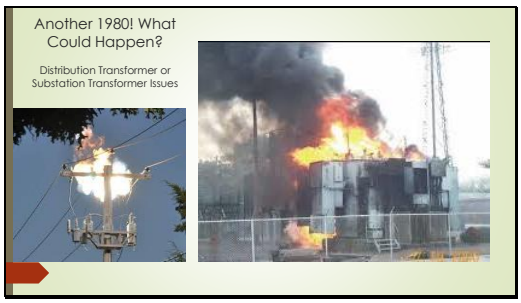
Slide 9



What if we hit the temperatures we hit in 1980?