Electricity Basics for Economic Development Professionals

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KCP&L
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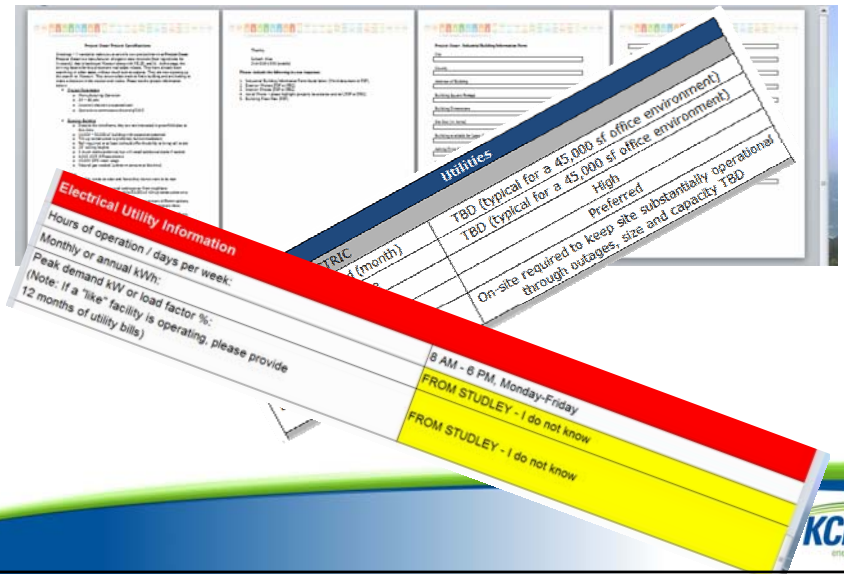
You receive an RFP that looks like this:



To you, the utility part of the RFP looks like:

Or it might as well as sounded like this:

Electricity Basics for Economic Development Professionals

- Better know who we are…
- Infrastructure Overview
- Tools to assist you and your customers
- Situational Practice

Classes of Electric Power Providers in Missouri

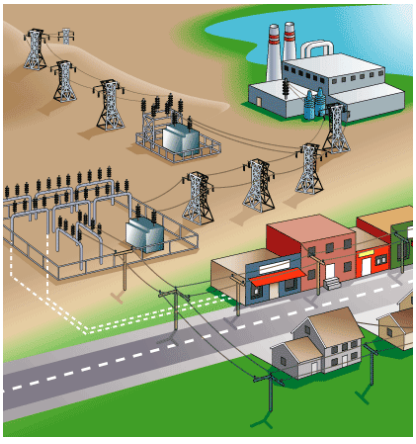
Municipals
•Missouri Joint Municipal Electric Utility Commission (67)

Rural Electric Cooperatives
•Associated Electric Cooperative, Inc.
(6 Electric Power Cooperatives/46 Distribution Cooperatives)

Investor-Owned Utilities
•Ameren Missouri
•Empire District Electric Company
•KCP&L

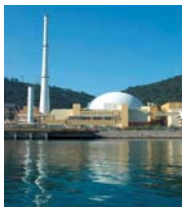
Infrastructure Components

Electric System



Generation

Nuclear



Coal-fired

Wind

Hydroelectric

Gas combined-cycle

Samples of Generation Portfolio Mix

The percent breakout of the source(s) utilized in the generation of electric energy. Typically utilities in Missouri rely heavily of coal.

KCP&L Coal 74%, Nuclear 15%, Natural Gas 3%, Renewable 8%

Ameren Coal 73%, Nuclear 24% Natural Gas 1%, Renewable 2%

Springfield Utilities Coal 62%, Natural Gas 7%, Purchased Power 22.5%, Renewable 9%

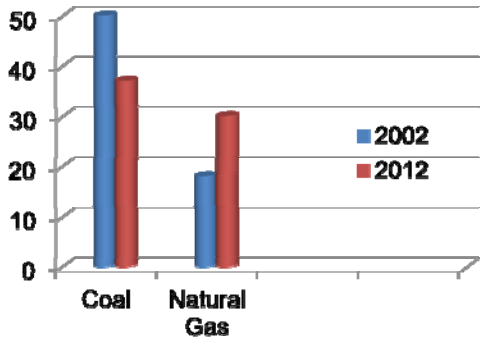
Associated Electric Cooperative Inc. Coal 75%, Natural Gas 14%, Renewable 10%, Purchased Power 1%

Coal vs. Natural Gas

Primary source switching to Natural Gas from Coal

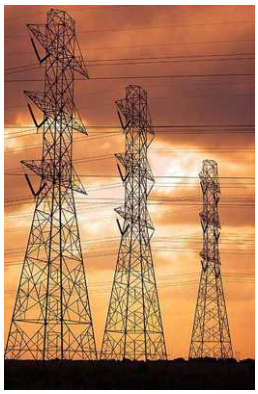
- Technological advances have unlocked vast amounts of the fuel in shale rock formations
- EPA Regulations (2015)

Coal vs. Natural Gas

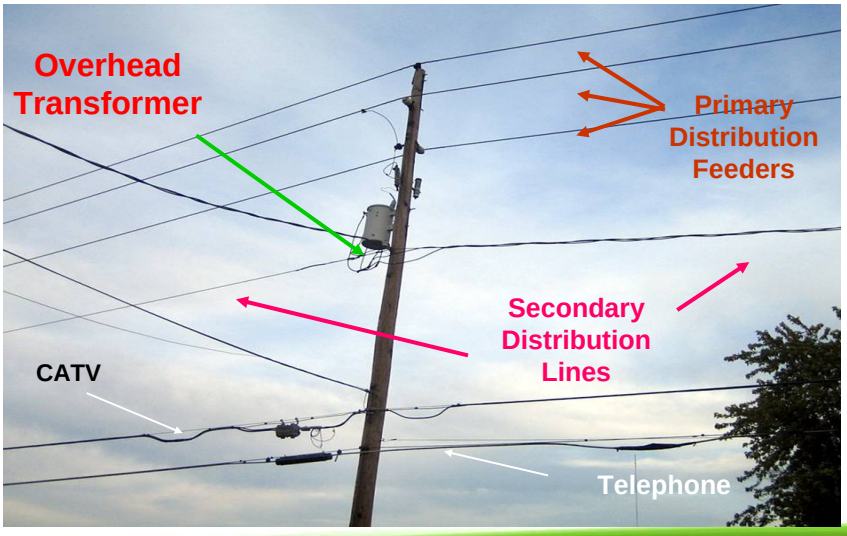


Source: Energy Information Administration 2013

Transmission



Overhead Electric Distribution



Underground Electric Distribution

Rates

- Electric utilities usually offer four primary classes of service: residential, retail, commercial, and industrial.
- The rates you pay for electricity cover the costs of fuel, transmission, operating costs, maintenance, make environmentally-friendly improvements to power plants, a return on investment… and Marsha Wallace's retirement.

Rates

Average Cents per kWh

	Retail	Residential	Commercial	Industrial
MO Average	8.78	10.56	8.40	6.26
Regional Avg.	8.06	10.35	8.07	5.68
National Avg.	10.09	12.20	10.19	6.60

Source: EEI Typical Bill Rankings Report and Typical Bill/Average Rates Report (For 12/3/2012)

Tools to Assist You and Your Customer

Basic Language of Electricity

Basic Language of Electricity

Volts– the 'force' at which energy flows (pressure)

Household electricity is 120 volts (abbreviated 120 V). Flashlight batteries are 1.5 volts. Car batteries are 12 volts. Small motors are 480 volts.

Amp- the flow of electricity.

A typical household electrical outlet is 15 amps (abbreviated 15 A).

Watt –represents power (work over time) and to get lots of watts you need lots of volts AND lots of amps. (Volts x Amps)

Incandescent light bulbs are typically 60, 75, or 100 watts. Compact fluorescent lights (CFLs) have somewhat smaller wattage ratings. Microwave ovens and hair dryers are 1,000 or 1,200 watts.

Basic Language of Electricity

Demand – rate of peak energy consumption (KW)
(sometimes called load)

Kilowatt (KW) = 1,000 Watts

Megawatt (MW) =1,000,000 Watts =1,000 KW

Usage (kWh) – amount of energy consumed over a period of time

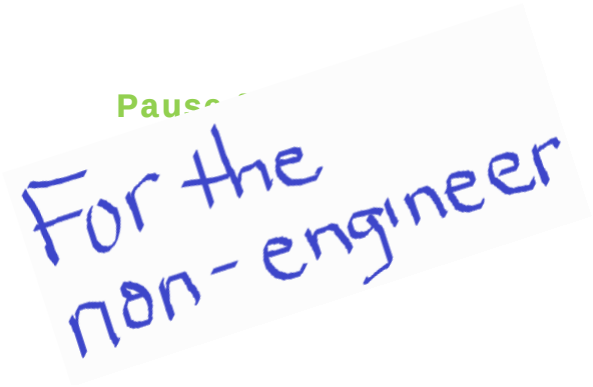
Redundant- the duplication of critical components to ensure the continued supply of power in the event of a fault

Load Factor – the ratio of actual usage to maximum potential usage. How many hours an operation is at peak demand compared to the total number of hours in a period of time.

What do we need?

- Site Location (address, intersection or map)
- Type of Operation
- Peak Demand in Kilowatts (KW)
- Energy Consumption/Usage in Kilowatt Hours (kWh)
- Hours of Operation/Days per Week
- Redundant Needs (is a dual feed required?)

Pause



Why bring the utility into projects early?

Managing Customer & Community Expectations

- Review by engineers and planners
- Determine best way to serve the customer
- Determine potential customer charges
- Determine potential customer savings (EDR and Energy Efficiency Programs)

Matching your prospect to the right site

Heavy Industrial – Sub-transmission or transmission on-site or nearby, possible dual feed capability

Data Centers – Sub-transmission or transmission on site or nearby, redundant service capabilities, high reliability

Light Industrial/Distribution – Primary or secondary voltage lines available

Office – Primary or secondary lines nearby, underground often preferred

What are the benefits of an "Electric-Ready" Site?

Proximity to Electric Facilities – The Closer the Better

Low or no Customer Charges for Line Extensions – High charges for system improvements and/or extensions can jeopardize projects

Time Requirements for System Upgrades/Line Extensions – Lengthy extensions and system upgrades can require a considerable amount of time, this doesn't always meet the customer's timeframe

Practice

Practice #1

A manufacturer is evaluating your community for a new facility and they have asked you to provide feed back on an initial request for information. At this point, you don't have time to reach out to your utility contact, but due to training you have received at MEDC, you feel confident that you can address the request.

Please read this and find information that is useful, information that you feel is not accurate or incomplete, and think about how you can be helpful to the client.

From: Engelmann John
Sent: Friday, June 07, 2013 8:07 AM
To: Engelmann John
Subject: FW: Project Request

Dear Local Economic Developer:

We are representing our client in an economic development project. We are pleased to tell you that you are one of an exclusive list of 150 communities we are contacting as part of our nationwide analysis for a new manufacturing facility that will employ 100 people.

We currently only want to talk to you about the project. Here is information about the project:

Size of facility:	100,000 sq. ft.
Capital investment:	$10,000,000
Employees:	100 FTE
Average Wage:	$42,000
Hours of operation:	2 shifts (20 hours total each day) /Mon-Fri
Electric Demand:	15,811,200kWh

I will call you today at an inconvenient time for you, because we want to know specifically about electric costs, and any incentives the utility might offer.

Sincerely,
Thomas Harte, Esq.
Scewem, Goode and Harte LLP

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Were You Listening?