Connecting to the Electric Grid

R. Nolan Clark
Commission Responsibilities

- Review and approve wholesale sales of electricity and transmission in interstate commerce for jurisdictional utilities, power marketers, power pools, power exchanges and independent system operators
- Certification of qualifying small power production and cogeneration facilities
State Regulatory Agencies for Electric Utilities

- Arizona Corporation Commission
- New Mexico Public Regulations Commission
- Oklahoma Corporation Commission
- Texas Public Utilities Commission
Types of Electric Companies

- **Generation** – Own and operate generating plants (hydroelectric dams, coal plants, etc.)
- **Transmission** – Own and operate transmission lines to move electricity across the countryside (usually high voltage)
- **Distribution** – Provide electrical services to local consumers (local low voltage lines, meters, and billing)
Local Utilities

• **Investor Owned** – Owned by individuals or a corporation of investors (Xcel Energy)

• **Municipal Owned** – Owned and operated by a city (Lubbock Power and Light)

• **Cooperative** – Owned by the people who purchase electricity from the utility (Rural Electric Cooperatives)
New Mexico’s Rural Electric Cooperatives
Investor Owned

• Large companies that usually do generation, transmission and distribution
• Have set rules for small power producers
• Have established rates for purchased power
• Often accept small power producers to meet state requirements for renewable energy standards
Cooperatives

• Follow policies by the USDA Rural Electric Administration
• Almost all cooperatives purchase power from a wholesale source (Tri-state Generation)
• Many are just now developing policies for connecting independent generators to their systems
What to Do!

• Determine who your local electric company is and learn what type of company they are.
• Ask if they have written policies about connecting a generator to their system.
• Read and study the policies.
• Study their purchase rates.
Simplified Interconnection

• Median size generator is 300 kilowatts from a 1200 head dairy (EPA, AgStar)
• Average size generator is 487 kilowatts from a 1965 head dairy (EPA, AgStar)
• Dual metering required with a disconnect
# PNM Purchase Rates 2011

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<tr>
<th>Month</th>
<th>Off-peak Rate</th>
<th>On-peak Rate</th>
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Problem??

• Buying electricity at retail rate for milking parlor, refrigeration storage, feed mill, water pumping, etc.
• Selling electricity at wholesale or less from your generator
Solution!!!

- Maximize the use of the electricity you produce
- Sell as little electricity to the utility as possible
- Manage your digester system to produce electricity when you have peak electrical use
- Operate generator during feed mill operation times, peak refrigeration times, water pumping