A Southwest Perspective on Ag EE

Tom Potter

Director, Rural Programs

SWEEP

How does SW compare to other regions? (similarities)

- Loss of small farms and communities
- Need for more diverse rural income
- Looser, informal rural communications
- Commercial and Residential sectors often reported together
  - Residential is typically 60%-80% of total rural electrical end-use
  - This observation results in a key Ag Energy conclusion for the Southwest

Key Ag Energy Conclusion

- Rural buildings have the highest payoff
  - Largest stock of non-audited, non-retrofit buildings in North America (14 million)
  - Cost-effective savings of 20%-40% are technically and economically feasible
  - Large inter-customer distances and significant utility resistance appear to be the biggest barriers to achieving those savings
  - Both barriers are amenable to resolution
    - E.g., Levy bill requires 3% revenue spend on EE

How does SW differ from other other regions?

- Lower muni and REC utility rates (IOUs are rapidly gearing up for EE)
- Dry, temperate climate w/ extremes
- Resulting differences in ag energy mix
  - Crops
  - Dairy
  - Livestock

Electric/Gas Utility Rates

- Typically lower with “muni’s” due to federal hydro allocation
- Rural electric cooperatives (RECs), which serve most rural areas, have lower rates than IOUs
- In either case, have not seen anything like the doubling and tripling of diesel and fertilizer energy prices, which account for much more of a farmer’s energy costs

SWEEP's IOUs are gearing up for EE

State	DSM program budget (million $ per year)					
	2002	2004	2005	2006	2007 (est)	2008 (est)
AZ	4	4	10	19	32	42
CO	11	21	24	18	25	32
NV	3	11	14	30	36	48
NM	1	1	1	1	4	10
UT	9	16	20	25	30	33
WY	~0	~0	~0	~0	~0	1
Region	**29**	**54**	**70**	**93**	**127**	**166**

Climate

- Typical weather patterns greatly affect the types of energy loads in buildings
- Also affect the selection of
  - Crops
  - Dairy
  - Livestock

SW Ag Energy Use per climate

- Buildings
  - Large daily ΔT allows better use of ambient
- Crops
  - Less fossil energy used for grain drying
- Dairy (Not as many dairies due to less-lush growing conditions)
  - Less power used for pumping and cooling
- Livestock
  - Dry trails and open ground led to cattle drives

Livestock (continued)

- Now, High Plains finish-feed most U.S. cattle
  - Motor loads for grinding and mixing
  - Feed corn is watered with unsustainable withdrawals from the Ogallala Aquifer = massive pump loads (e.g., 125mW summer vs. 40mW)
  - Growing power loads for beef processing
- CAFOs (e.g.,122 swine CAFOs in E. Colorado)
  - Tens of thousands of animals in each building drive megawatt-scale fan loads

Major rural SWEEP targets in 2008 - I

- Gain more substantial involvement of other rural interests in conservation, efficiency and demand response (CEDR), e.g.,
  - DOE/Weatherization, USDA, Extension Service, State energy offices, rural bankers, economic development organizations, farmer associations, ESCOs and other CEDR industry, rural foundations

Major rural SWEEP targets in 2008 - II

- Support role of rural utility as most likely CEDR program delivery agent:
  - Share expertise and others' experience
  - Reduce program barriers and hassles, and improve incentives
  - Facilitate new learning on non-hardware change drivers
  - Support authorizing legislation to 1) enable utilities that want to contribute and 2) require some level of contribution by all others

Conclusions

- We can achieve major rural energy reductions in the Southwest; buildings could contribute the most
- Rural utilities are our most likely allies, long-term, and IOUs are gearing up
- RECs and muni's will need major support if we wish to achieve challenging goals of 20%-40% savings over base

Afterword

Contact Tom Potter at
303.503.2230 tpotter@swenergy.org

SWEEP (the Southwest Energy Efficiency Project) is a non-profit group that promotes energy efficiency in AZ, CO, NM, NV, UT and WY

Check out our website at
www.swenergy.org

Thank you