## ElectricityRestructuring: A Cost-savingStrategy forMetal Finishers

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Metal finishing shops are in a good position to benefit from the coming electric utility restructuring. This is true for two reasons: First, metal finishers are large electricity users and, in general, have ample opportunities to increase their energy efficiency. Second, the industry is generally well organized in terms of regional and national industry associations, including local and state chapters of the National Association of Metal Finishers (NAMF), the American **Electroplaters and Surface Finishers** Society (AESF) and the Metal **Finishing Suppliers Association** (MFSA). Local and regional associations can, in principle, act as aggregators for local metal finishing shops to make it easier to negotiate rate reductions when purchasing electricity. What follows is a summary report of a study compiled by the authors.

W<sup>orking</sup> with the NAMF/AESF/ MFSA Legislative Affairs staff, the Industrial Technology Institute (ITI)\* Energy & Environment Center has prepared an initial report of the kind of electricity cost savings that can be expected from electricity deregulation and restructuring. We have data obtained from the U.S. Department of Energy's Industrial Assessment Center database for 63 metal finishing shops from throughout the U.S. We make use of this data to convey the range of electricity use patterns across a wide variety of shops. In addition, we have used a unique database of 11 metal finishing shops in the Detroit area. These data come from ITI Manufacturing Energy Analysis reports done for each finisher over the past five years. Each report is from 40-70 pages with detailed analyses of energy use characteristics for each shop. Having 11 of these case studies available is extremely valuable for gaining insight into how metal finishers use electricity and natural gas and, more impor-

For a Group of (Primary Service) Metal Finishers				
Electricity Consumption for Primary Service Metal Finishers:				
Average Annual kWh =	5 million kWh			
Range of Annual kWh =	1.1 to 8.7 million kWh			
Maximum Peak Electric Demand per Primary Service Finisher =	858 kW			
Average Demand per General Service Metal Finishers =	290 kW			
Total kWh for 11 Metal Finishers =	50 million kWh			
Electricity Costs for Primary Service Metal Finishers:				
Average Annual Primary Service Electricity Bill =	\$324,000/Yr			
Average Annual Primary Service Demand (kW) Bill =	\$160,000/Yr			
Percent of Total Electric Costs as Demand Costs =	49.4 %			
Average kWh Electric Costs =	\$0.065/kWh			

Table 1: Electricity Use & Costs

tantly, what we recommended they do to reduce their energy consumption and costs. Table 1 summarizes the metal finisher case studies we analyzed in our final report.

Potential Savings for Shops In general, a mid-size metal finisher on a primary 220V-480V service rate schedule, currently spends approximately \$300,000 per year for electricity. Saving 30 percent of these costs would produce bottom-line cash flow of \$90,000 per year. If a company realizes net income that amounts to a return on sales of 10 percent, then these cost savings would be the equivalent to an increase in sales of \$900,000.

Cost-savings recommendations for shops are discussed in Chapter III of the complete report. The combined savings from both deregulation and aggregation for three specific jobshops have been calculated as an example. Table 2 shows these results.

Deregulation, aggregation, conservation and efficiency improvements could yield savings of 15 to 25 percent per year for these three jobshops. This is a very significant savings of \$6,500 to \$8,500 per month of cash flow, once these savings are realized. Time and money spent preparing for deregulation and aggregation should be regarded as a high-yield investment. The key building block elements of a cost savings program appear below. Energy Analysis program. Based on the experience of both organizations with hundreds of small manufacturers, we have identified the following costsaving strategy for jobshops:

Know your electric bill. You should understand the meaning of each charge on the bill and the different rate schedules (e.g., Commercial Secondary vs. Industrial Primary) available for facilities such as yours. Have your utility company explain each item if necessary, and have them assure you that you are paying the most advantageous tariff schedule available.

Analyze your company's kWh electricity consumption on a monthly basis. Determine if your company is near the minimum, maximum or average for electricity consumption for your industry based on annual electricity kWh per dollar sales, per employee, per facility square-foot or per production hour. Use energy consumption information from high efficiency shops to help identify opportunities to improve performance.

*Track your company's kW electric demand.* Know your facility's electric demand profile by the week, month, and season. Be prepared to take actions that will reduce the profile overall and the maximum peak demand for kW, in particular.

*Know your electricity costs* in terms of dollars spent per month and what the main underlying consumption uses are, such as equipment, machinery, ovens, furnaces and lighting. Have an audit done if necessary.

Develop an electric cost savings target for your company, and with management commitment, develop a

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Cost-saving Strategy Elements Some lessons for companies are clearly defined in the analyses of data compiled by DOE Industrial Assessment Center and ITI's Manufacturing

plan and a schedule for achieving this target.

*Invest in groupings of efficiency improvements:* Even if your company's required payback rate is too short to cost-justify a single specific energy efficiency improvement, consider investing in a logical grouping of efficiency improvements.

*Consider joining an aggregation group*: Be prepared to purchase electricity as part of a buying group of companies if there is a real economic incentive to do so.

Be prepared to deal with several "unbundled" electric power cost components (i.e., generation, transmission, distribution, back-up, etc.) that will become part of a purchase agreement with any new supplier(s) of electricity, whether generator, broker, or power marketer.

Understand typical contract provisions used by local utilities, marketers or brokers and prioritize which provisions are most important for your company. Use your own industry association contacts to get feedback on what advantageous contract terms might be available.

*Know which are the scarcest resources:* The resulting competition after deregulation will put a cost premium on the scarcest resource, which in most cases will either be generation capacity, interstate transmission capacity or local distribution capacity. Therefore, the lower your kW capacity demand, the better.

It should not be a surprise to industrial managers that reducing energy costs requires some effort and resources. Putting someone in charge of a cost-reduction effort is the most effective way of getting things done. Give whoever is made responsible two things: A budget to buy things that need to be purchased to do the job, and entitlement to some share of the savings realized that can be used for some other company function or activity (picnic, holiday event or employee award program).

Participating in the Process In addition to pursuing the 10 costsaving elements outlined here, a small business owner or manager should also look for ways to participate in the deregulation process to protect the company's interest, your industry's interest and your local regional economic development interests. You can start by asking your local, state or national industry association or business association to write position letters to the local public utility commissioners, and to appropriate

## Table 2: Combined Savings Caused by Deregulation,

Aggregation, conservation & Efficiency improvements			
	Co. A	Co. B	Co. C
Current Electric Bill	\$471,806	\$513,652	\$334,891
Bill after Deregulation & Aggregation	\$397,798	\$448,394	\$270,858
Savings from Deregulation & Aggregation	\$74,008	\$65,258	\$64,033
Savings from Conservation	\$9,075	\$9,491	\$6,591
Savings from Efficiency Improvements	\$16,531	\$3,763	\$13,978
Total Savings:	\$99,614	\$78,512	\$84,602
Percentage Savings from Current Bill	21%	15%	25%

representatives and committees of state and federal governments.

For example, one issue in several metropolitan areas stems from the local major utility negotiating "stay on our system" contracts with their largest customers and committing to significant rate reductions and energy services over 10-year periods. Smaller customers, including many industrial and commercial businesses, feel left out of the process and wonder if rate *increases* are in store for them because of all the revenue reductions that will result from the rate cuts given to their largest customers.

Unfortunately, unless smaller businesses make these concerns known, the applicable state public utility commission (PUC), which is in a position to look out for the public interest, may not necessarily recognize this as an issue, if someone doesn't bring it to their attention. Therefore, getting involved in the process is a step forward. In short, do some or all of the following:

*Request information* about the status and issues related to your state's deregulation activity. Make your local PUC explain the situation that faces small business. Find out who is best articulating small business issues to the PUC and contact them for position statements and information.

*Voice your deregulation concerns*—such as stranded costs, reliability and back-up service costs, metering and billing services and costs, and rate reductions from competition. Then prioritize them in order of importance to your industry and to your company, and then communicate them to the PUC and state government officials.

Gain support of major larger customers, such as the "Big 3" automakers, who agree that lower-tier suppliers should be insured a level playing field in terms of future electricity rates. They know that higher supplier costs will eventually result in higher prices for parts that they must pay to their suppliers.

*Make an effort to understand* state regulatory policy, utility organizational changes and changes in

electricity pricing and costing components. You don't have to be an expert to understand the issues involved. If your PUC or utility doesn't provide any help then call your local natural gas broker, or a local power marketer, and ask them to provide the basic information you need. Also, look for technical assistance organizations that have some industry and utility experience. For example, the Industrial Technology Institute in Michigan (call 313/769-4087) or the National Institute of Standards and Technology's Manufacturing Extension Partnership. (call 301/975-5105 or access the NIST/MEP website at http:// www.mep.nist.gov) The latter has centers dedicated to working with jobshop manufacturers in all 50 states. Finally, ask your industry or trade association (NAMF, AESF or MFSA) to provide some guidance information on the market changes that can be expected and how industry members are reacting to them. PESF

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