

REQUEST FOR INNOVATIVE ELECTRICAL CONSERVATION PROGRAMS

Gainesville City Commission
Energy Conservation Workshop
April 19, 2004



RFP Goals

- Enlist Private Sector's creativity & harness their industry knowledge
- Energy Conservation and peak power demand reductions
- Opportunities for local jobs and economic development
- Conserve natural resources and reduce air emissions

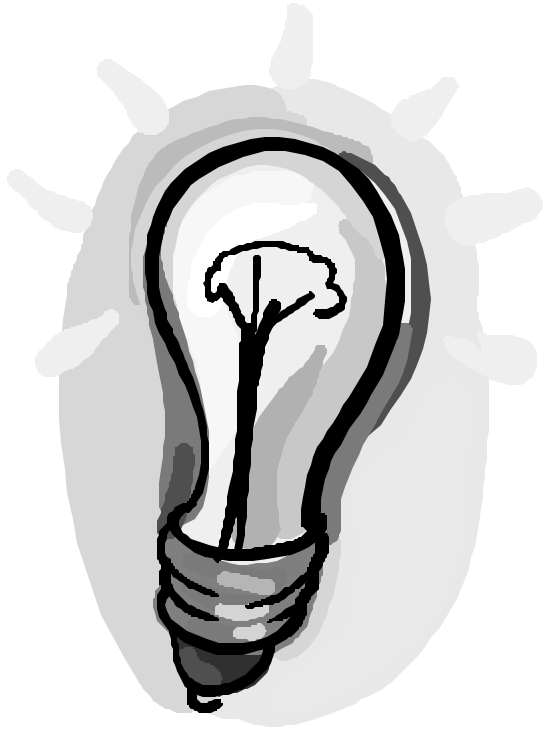
RFP Components

- GRU will pay for development of detailed Business Plans for innovative programs
 - Up to \$7,500
- Proposals to provide additional cost-effective conservation
 - GRU will pay for proven performance

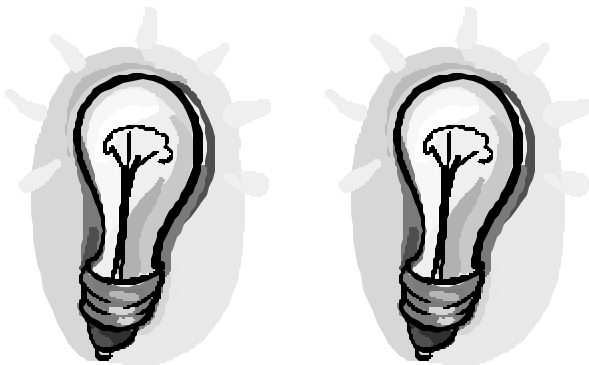
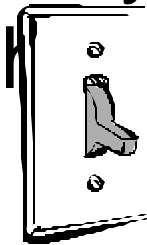
Not all conservation is created equal

- Some Conservation measures have more value to our customers than others.....
- Considerations include:
 - Time of day (peak)
 - Fuel costs
 - Who benefits (conservation participant, rate-payer, society)?

CAPACITY



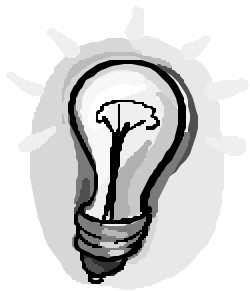
CAPACITY = the facilities (generators, wires, etc) that provide the ability to turn the switch **ON**



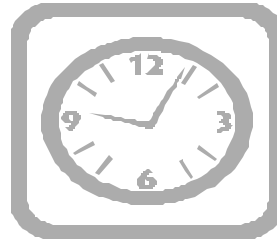
- Two light bulbs require **TWICE** the **CAPACITY** of one

ENERGY

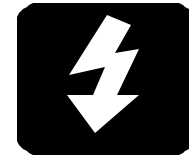
CAPACITY x TIME = ENERGY



x



=



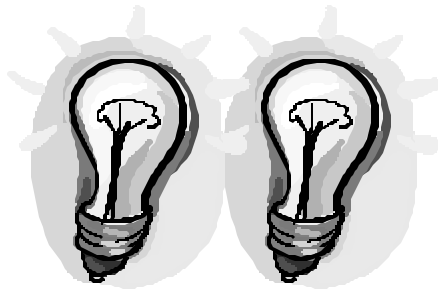
• 0.1 kW

x

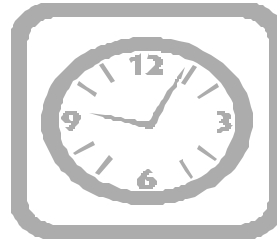
8 hours

=

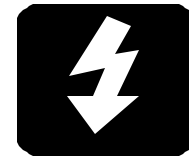
0.8 kWh



x



=



• 0.2 kW

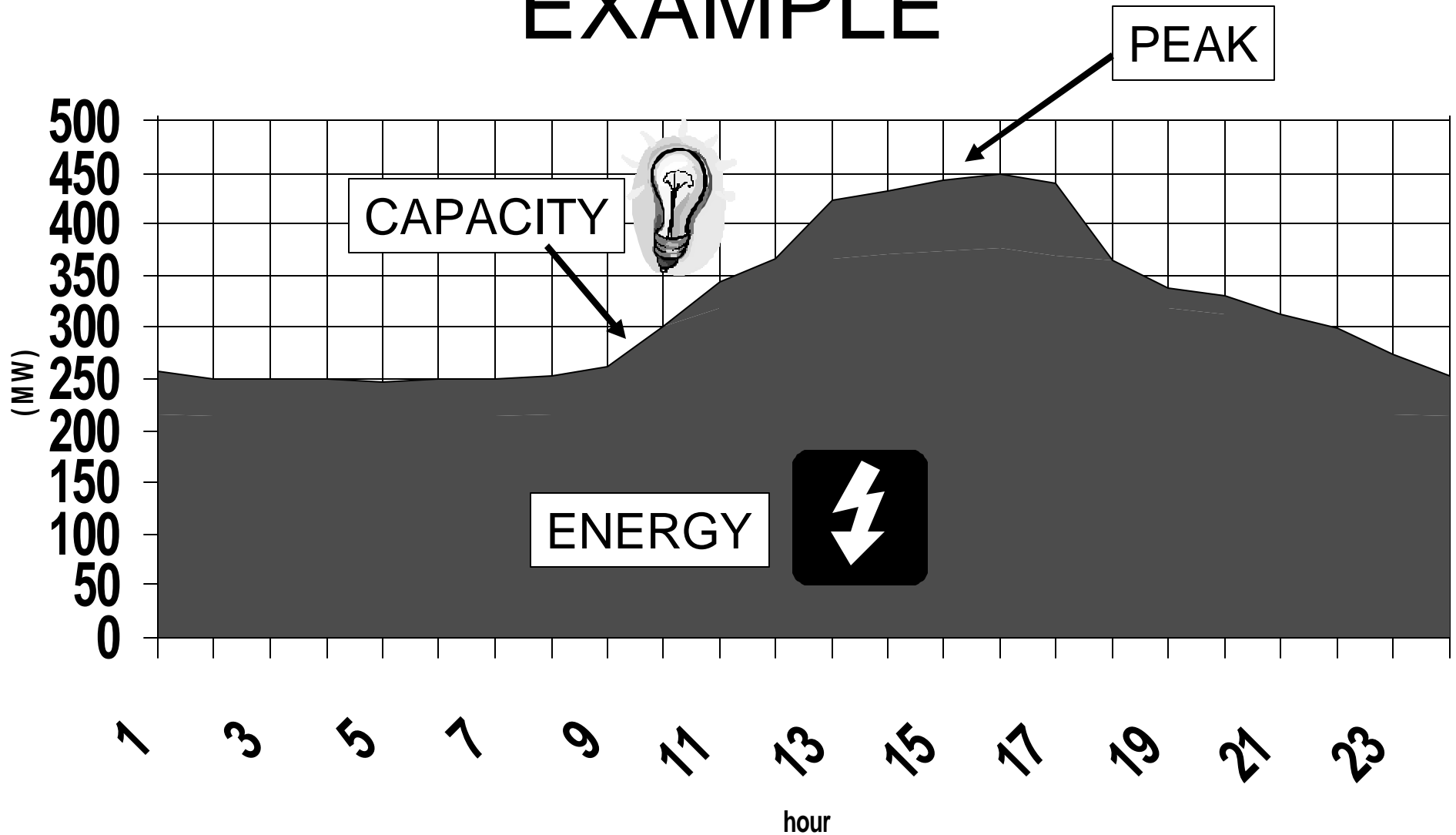
x

4 hours

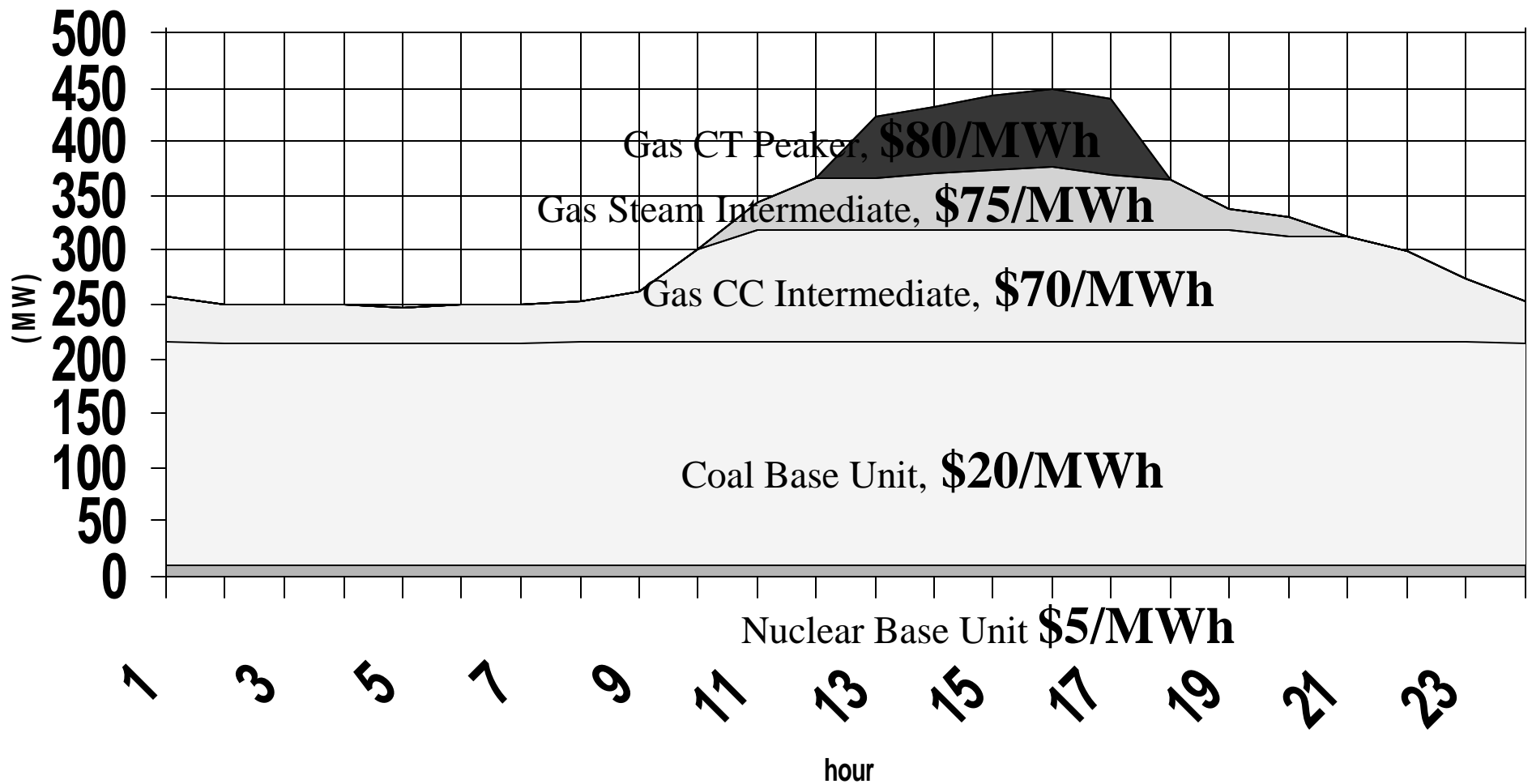
=

0.8 kWh

SUMMER LOAD SHAPE EXAMPLE





SUMMER LOAD SHAPE EXAMPLE





Peak Periods – What are they?

- May 15-October 15
12:00 noon - 9:00 p.m., weekends and holidays included;
- January 1-February 28
7:00 a.m. - 11 a.m. and,
6:00 p.m. - 10:00p.m., weekends and
January 1 excluded.

What are we looking for?

- Reduced demand for capacity 
- Peak period energy reductions 
- Verifiable results
- Consideration of free riders
- Consideration of rebound effect
- Consideration of use diversity

RFP Status

- Materials from Pre-Bid Meeting, March 12, 2004
 - PowerPoint Presentation
 - List of Questions Asked and Answers Provided
- Values for System Net Benefits for Proposal Evaluation:
 - Peak Power Demand Reduction (\$/kW), 
 - On-peak Energy Reduction (\$/kWh), 
 - Off-peak Energy Reduction (\$/kWh)
- Additional Bidder Questions

How were the Net Benefit Values derived?

- Determined value per MW of avoided new solid fuel capacity.
 - Capital Cost Reductions
 - Lost Opportunities to Replace Expensive Natural Gas
- Used EGEAS Generation Planning Optimization program
 1. Capital Costs
 2. Fixed Costs
 3. Variable Operating Costs
 4. Fuel Cost

Results

- **PARTICIPANT BENEFITS**



- Lower energy usage results in lower energy bills

- **SYSTEM NET BENEFITS (RIM Test)**

Capacity - On and Off Peak Avoided Cost

Energy, net of:

- Avoided Production Costs
- Lost Fuel Savings Opportunities
- Lost Non-Fuel Revenues, e.g. T&D



Participant Benefits

Residential

\$0.077/kWh



Includes portion of rates designed to recover costs for transmission and distribution, as well as energy.

System Net Benefits

Residential	
<u>\$/kW</u>	
On-Peak	Off-Peak
\$61.88	\$26.35
<u>\$/kWh</u>	
On-Peak	Off-Peak
(\$0.067)	(\$0.091)



\$/kWh are negative because the avoided production costs do not outweigh the lost opportunity for lower fuel costs and lost non-fuel revenues

Application Example

- Residential Air Conditioner Load Control

System

Participant

Reductions				
		At Meter		At Plant
On-Peak Demand Reduction (kW)		1		1.05
Off-Peak Demand Reduction (kW)		0		0
On-Peak Energy Savings (kWh)		100		105
Off-Peak Energy Savings (kWh)		0		0



Savings Depend on Perspective

Residential Air Conditioner Load Control

PARTICIPANT BENEFITS

Energy Savings

$$(\$0.077 \times 100 \text{ kWh}) =$$

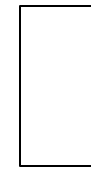


\$7.70

SYSTEM NET BENEFIT VALUES

On-Peak Energy + **Off-Peak Energy**

$$(\$-0.067 \times 105) + (\$-0.091 \times 0) +$$



On-Peak Capacity + **Off-Peak Capacity**

$$(\$61.88 \times 1.05) + (\$26.35 \times 0) =$$

\$57.55



The Rest of the Story...

- **Example of Residential Air Conditioner Load Control did not include:**
 - Load Control Switch: \$300/customer or \$34/year
 - Typical Customer Incentive Payment: \$24/year
 - Operation and Maintenance: \$32/year
 - Total Program Cost:



\$90/year
- **System Net Benefit: \$58/year**
- **Not Cost Effective for Our System**
 - Unless Innovative Program is proposed without expense of switches

Another Example

- Ceiling Insulation (R-19 to R-30)

Participant

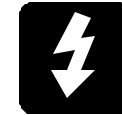
System

Reductions				
		At Meter		At Plant
 On-Peak Demand Reduction (kW)		0.3		0.32
Off-Peak Demand Reduction (kW)		0		0.00
 On-Peak Energy Savings (kWh)		750		787.50
Off-Peak Energy Savings (kWh)		0		0.00

Savings Depend on Perspective

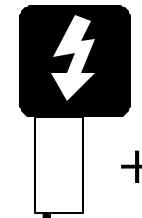
Ceiling Insulation (R-19 to R-30)

PARTICIPANT BENEFITS



$$\text{Energy} \\ (\$0.077 \times 750) = \boxed{\$57.75}$$

SYSTEM NET BENEFIT VALUES







$$\text{On-Peak Energy} \quad \text{Off-Peak Energy} \\ (\$-0.067 \times 787.50) + (\$-0.091 \times 0)$$



$$\text{On-Peak Capacity} \quad \text{Off-Peak Capacity} \\ + (\$61.88 \times 0.32) + (\$26.35 \times 0) = \boxed{(\$33.13)}$$

What do the numbers mean?

1. Capacity savings benefit all of us by avoiding capital costs 
2. Avoided Capacity saves capital costs but increases fuel costs 
3. On-Peak Energy reductions are more valuable than Off-Peak (On-Peak energy is more expensive) 
4. Avoided Energy production costs in most cases do not outweigh the lost opportunity for lower fuel costs and lost base revenues, e.g. T & D 

In Conclusion

- Energy Conservation will always benefit the participant's bill, although capital and other outlay may be required
- The All Rate Payers' Test (RIM) determines system benefits
- The value of conservation is affected by the benefits of adding solid fuel capacity

In Conclusion

- We are willing to pay for cost effective reductions in capacity and energy



- We are seeking innovative programs to deliver Energy Conservation incentives

Innovative Electrical
Demand Side Management Programs
RFP NO. 2004-060

- Proposals due by April 30, 2004 at 2:00 PM
- RFP contact:

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