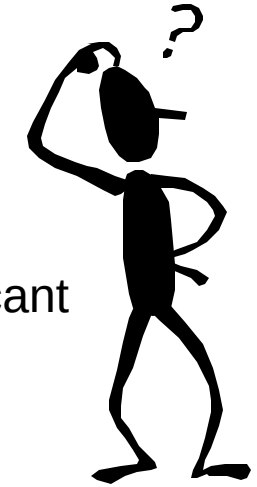
Personal Actions

To Minimize Contributions To Global Warming

What Can I Do?



- **Global Warming Is A BIG Problem**
  - Changes at the individual or household level seem insignificant by comparison
  - Doing nothing will certainly produce nothing so TRY!
- **Average Comfortable Lifestyle in Unites States Uses Natural Resources At Levels Many Times That of Rest of World**
  - Changes in lifestyle can significantly reduce resource use to favorably affect global warming
  - Lifestyle changes (changes in comfort level) can be VERY HARD!
  - Start small to gain momentum and don’t give up - changes get easier to accept over time and many repetitions

Let's Get Started

- **Take a Snapshot of Current Energy Use**
  - Each household must understand strengths and weaknesses to find items of easiest maximum impact
  - Record energy use patterns for analysis

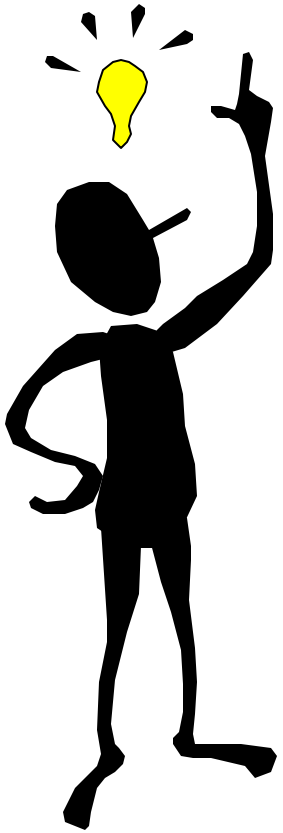
- **Review Electrical Energy Use in Home**
  - Review electric utility bills for prior year for average monthly kWh use
  - Measure kWh use per electrical appliance
  - Estimate hours of usage per week
  - Average CO home uses 7500 kWh per year (625 kWh / mo)
- **Review Fossil Fuel Use**
  - Transportation
    - Estimate number of trips via personal vehicle, distance per trip, trip times of day
    - Review all household member trips
  - Also review fossil fuel use by household tools
- **Easy Way Out - Carbon Footprint Estimator Web Sites!**

Record Results

Average Electricity Use Per Month			482.2			
Appliance	**Meas Energy Use (kWh)**	**Meas Time (hr)**	**Use / Day (hr)**	**Energy Use / Wk (kWh)**	**Energy Use / Mo (kWh)**	**% of Total**
Refrigerator	0.27	2	24	22.68	98.28	20%
Inc Lamp	0.15	2	7	3.68	15.93	3%
Flour Lamp	0.03	2	7	0.74	3.19	1%
Computer - off	0.01	1	16	1.12	4.85	1%
Computer - power save	0.16	1	2	2.24	9.71	2%
Computer - on	0.53	1.45	6	15.35	66.52	14%
Dryer - Light Load	0.17	per load	2	0.34	1.47	0%
Dryer - Heavy load	0.26	per load	2	0.52	2.25	0%
Washer	0.26	per load	4	1.04	4.51	1%
TV	0.6	4	8.5	8.93	38.68	8%
Total						51%

Identify Changes

- Initial Analysis Generally Identifies Changes With Large Energy Use Reductions and Small Associated Lifestyle Impacts
  - Purchase new, energy efficient appliances
  - Combine car trips
- Subsequent Charts Detail Many Possible Changes
  - Some involve monetary expenditures
  - Others identify difficult lifestyle changes
  - This list is not complete - identify others that work for you
- Identify Changes Right For You At This Time
  - Other changes may become candidates in the future
- All Actions Involve Some Amount of Personal Sacrifice
  - The most important thing is to do SOMETHING!



Reduce Your Electrical Power Consumption

- Start With Smaller Changes With Maximum Impact
- Replace existing appliances with energy efficient models
  - New models offer large improvements over even the last 5 years
  - Refrigerators are large energy users – bottom freezer models require 2/3 power of side-by-side
    - Approximately $2000, less on sale
  - Front load clothes washers use less water and spin at least half again as fast to reduce amount of water left in clothes – faster drying times
    - Approx $1000 each for washer / dryer
  - Consider all appliances to include dishwasher, air conditioner, furnace, water heater
    - Newer appliances have additional benefits in reduction in water use, improved functionality, other technological improvements
  - Get rid of old appliances – don’t use in addition to new

Additional Changes Require More Effort

- Reduce Electricity Use With Lifestyle Modifications
  - Increase thermostat setting 2-4 degrees in summer, lower setting in winter (for those with electric heat)
    - Further reduce AC needs with night time cooling - open windows and use fans
  - Install ceiling fans for both summer and winter use
  - Control passive solar heating to warm or cool house
    - Utilize window coverings
  - Plant trees to shade house and AC unit
    - One tree absorbs one Ton of CO_2 over its lifetime
  - Air dry clothes
    - Challenge HOA rules that restrict or outlaw clotheslines
  - Reduce use of “luxury” lighting - Christmas or other outdoor lighting
    - Electricity use can increase 20% with Christmas lights
  - Defrost foods in refrigerator before baking
    - Keep oven and refrigerator doors closed as much as possible
  - Replace incandescent light bulbs with fluorescent bulbs
  - Turn off lights when not needed or leaving room

Review Your Power Source

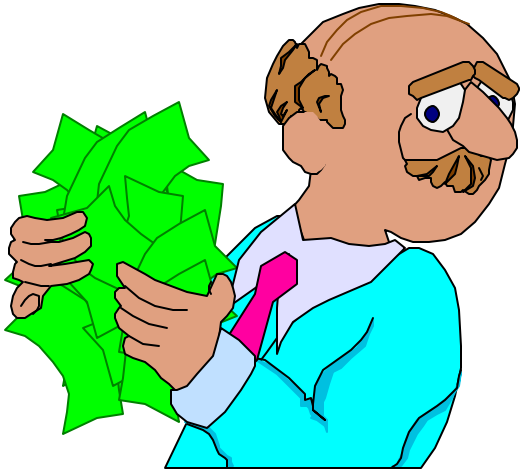
- Become an Activist for the Planet - Oppose New Coal-fired Power Plant Construction
  - Comanche 3 in Pueblo construction underway
  - Will generate equivalent of 1/2 of C02 emissions from all passenger cars in CO
  - Power plants generate 40% of CO2 in CO
- Sign Up For Wind-Generated Power
  - Programs offered through Xcel, other energy providers
- Sign Up For Xcel's Saver Switch
  - Provides flexibility for utility to control peak energy use during periods of high demand
  - Controls individual residential AC units
- Develop Personal Alternative Energy Sources
  - Viable sources include photovoltaic (PV) solar, geothermal
  - Wind energy not consistently reliable

Will Solar Energy Work For Me?

- Solar Energy Costs Estimated At www.findsolar.com
  - Sample case – 5500 kwh/yr ave household power usage requires 400 sq feet of panels and estimated $36000 cost to supply 100% of power needs (4kw peak power)
    - Xcel rebates, federal tax credit ($2000) cut cost to $16000
    - Saves 113 tons of C02 over 25 year span
    - 70% power needs drops size to 280 sq ft, $25200 up front, $10600 after rebates (2.8 kw peak power)
  - Ave household 7500 kwh / yr requires 350 sq ft, $31500 up front, $13750 after rebates (3.5 kw peak power) for 70% of power needs
- Incremental Panel Acquisition Provides Ability to Capitalize on Technology Advances Over Time

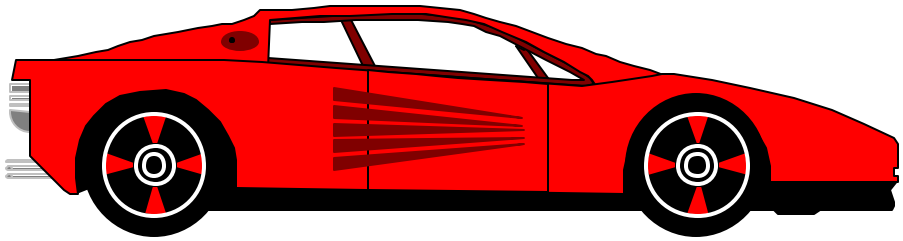
Are There Incentives to Solar?

- Incentives Offered by Xcel Solar Rewards Program
  - $2.00 per watt up to 10 kW plus $2.50 per watt
  - Rebate not paid until after system has been installed and inspected
  - Shading restrictions that limit potential participants
  - Contract period is 20 years
- Federal Government Offers $2000 Tax Credit
- Web Site Www.Findsolar.Com Has Links to PV Professionals – Designers / Architects and Installers / Servicers (With Ratings)



Fossil Fuel Consumption Reduction

- Two Areas of Concern
  - Transportation uses
  - Home heating uses



Transportation Habit Changes

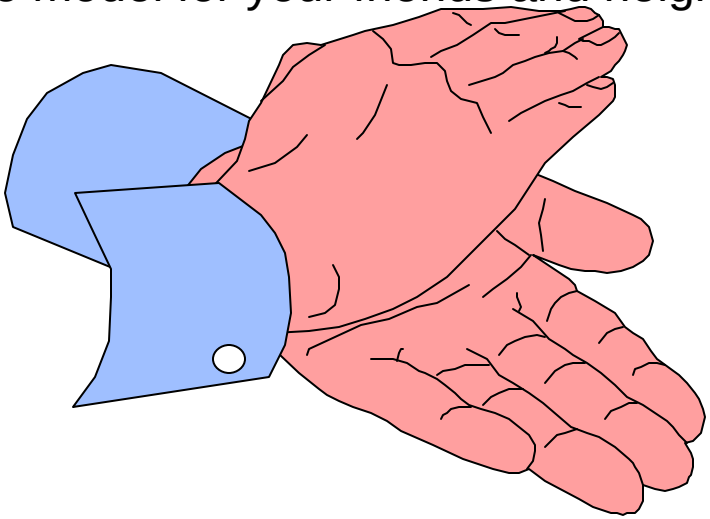
- Improvements in Transportation Habits Can Be Made Gradually
  - Reduce driving by combining trips, using alternative transportation methods, or removing the trip altogether
  - Telecommute if possible
  - Reduce air travel - take local vacations
  - Establish one no-drive day per week (consider weekends)
- If You Must Drive, Drive With Fuel-Efficiency Mindset
  - Tune your car, properly inflate tires
  - Change oil frequently - use synthetic - reduced friction
  - SLOW DOWN!!! 55 mph really is optimal
  - Use high efficiency driving techniques – need to be very attentive to traffic conditions, road rules
    - Minimize braking
    - Coast, coast, coast
    - Don’t idle car
  - Don’t drive at peak times with stop / go conditions, more idling

Additional Gas Use Reductions

- Buy High Mileage Car – Either Replace Large Cars or Use When Large Car Not Needed
  - Write your representative to request legislation to raise min fuel efficiency standards
- Reduce Need For OTHERS To Drive and Fly
  - Buy locally
  - Don’t buy out of season produce
- Reduce Fossil Fuel Use With Household Tools
  - Replace gasoline mower with push or electric mower
  - Sweep instead of using leaf blowers
  - Manually trim instead of using weed wackers
  - Shovel instead of using snow blowers
  - Better yet, shovel your neighbor’s driveway too!

Home Heating Changes

- Easiest Change To Make - Lower thermostat 2-3 (or more!) degrees
- Find other ways to heat your house (without burning wood)
  - Geothermal
  - Solar-heated hot water heat
  - Electrically-heated floors have high initial cost but provide efficient alternative
- Reduce hot water needs
  - Lower temperature set point on heater
  - Use cold (or at least only warm) water when washing clothes
  - Reduce shower lengths and temperature
  - Install solar water heating panels
- Wrap water heater in insulating blanket
- Reduce, reuse, recycle – much packaging is developed from petroleum products

Monitor Your Progress

- Continue To Watch Your Utility Bills to Note Progress
  - Also track gasoline purchases over time
  - Remember seasonal variations in electricity and home heating fuel use
- Plan Additional Changes to Lifestyle and Habits As Funds and Ideas Become Available
- Give Yourself Credit!
  - Lifestyle changes are HARD
  - Changes you make REALLY ARE making a difference for global warming and reducing resource consumption in the US
  - You’re a role model for your friends and neighbors