Operation Energy Transition: The Intelligent Community Response to the Peak Oil Crisis

DRAFT ONLY: THIS DOCUMENT WILL BE HEAVILY EDITED . . .

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LAST UPDATED: July 1, 2008

The latest version of this document may be obtained at ***www.theintelligentcommunity.com.***

Summary

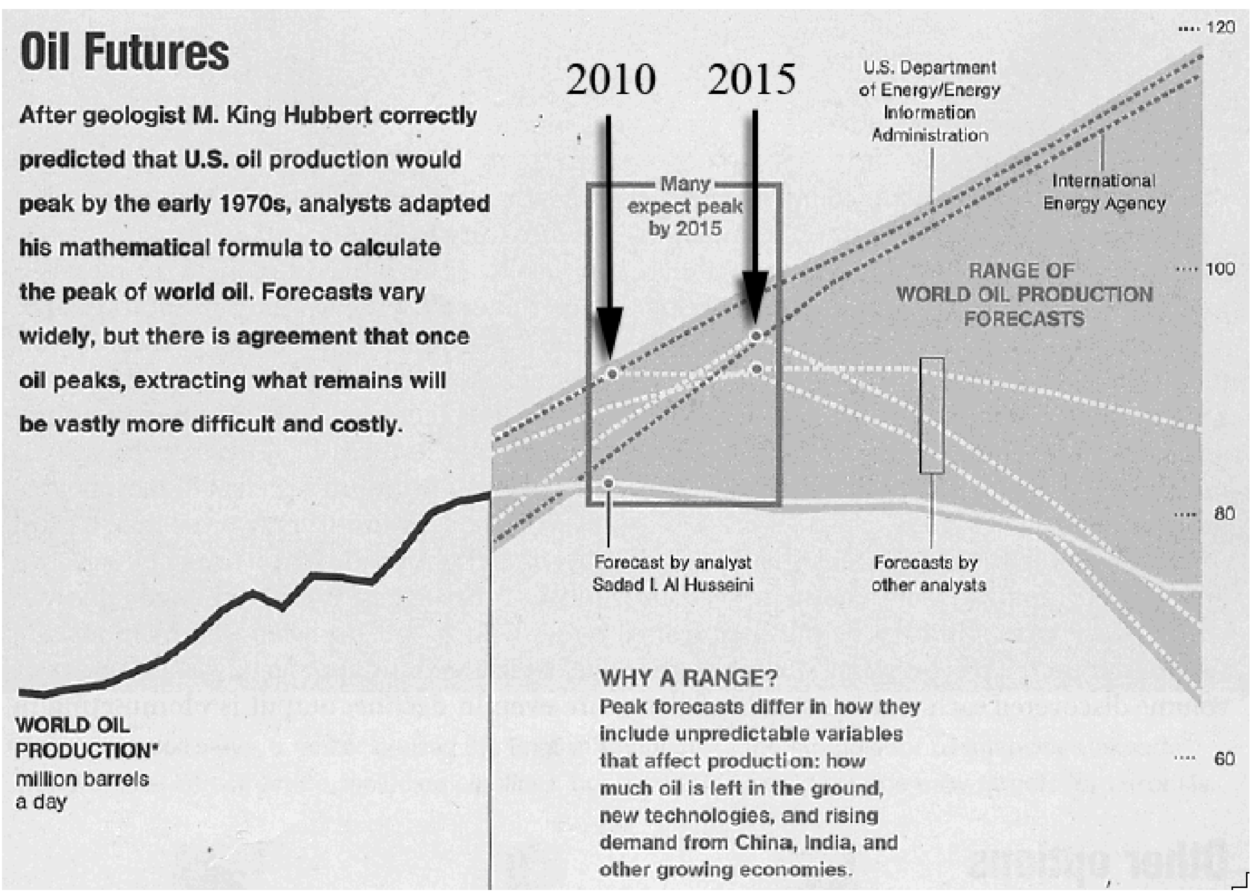
This is a draft version of the document defining the action plan for dealing with the peak oil crisis known as *Operation Energy Transition*. Normally, we would not post a document in such an unfinished state, but the urgency of the situation compels us to release the information we have as soon as possible. The final version, which will be produced by an *Intelligent Community* Team dedicated to the purpose, will be far more comprehensive, and will certainly differ from the immediate document. We welcome your contributions to this document. Please send any comments you have to teams@theintelligentcommunity.com.

As the most rudimentary analysis of the documents linked to on *The Intelligent Community* website reveals, the peak oil crisis is real, a direct function of the laws of physics. This paper will describe a rational response by *The Intelligent Community* to this crisis, an action plan called *Operation Energy Transition*. The concept of *Operation Energy Transition* is to organize Americans to turn society around 180° on three issues, energy consumption, energy supply, and societal re-architecture, as rapidly as possible. It is a project vast in scope.

Before describing this response to the peak oil crisis, we need to address the concerns of those who feel that "the peak oil crisis is not real," that much more oil remains to be discovered, and that the world can continue on its decades-old path of devil-may-care oil consumption for years to come.

The first point to make is what we implied in the first paragraph: that the concept of peak oil is not an *opinion*, or even a *hypothesis*: it is a *fact*. The only issue reasonable people can disagree upon is the precise timing of this event. Now? In 2010? In 2015?

One graph, prepared by the people of the National Geographic Society, shows a range of opinions by expert oil analysts that the period will appear between those two dates:



Notwithstanding this chart, however, many people believe we have already arrived at the peak, far earlier than expected.

Take a look at this table describing world oil supply from 1999 to 2007, prepared by the U.S. Energy Information Administration on May 12, 2008:

Energy Information Administration
April 2008 International Petroleum Monthly
Posted: May 12, 2008
Next Update: Early June 2008

Table 4.4 World Oil Supply[1], 1970-2007
(Thousand Barrels per Day)

	United States[2]	Persian Gulf [3]	OAPEC[4]	OPEC[5]	World
1999 Average	8,993	20,232	20,896	30,886	74,840
2000 Average	9,058	21,520	22,128	32,726	77,762
2001 Average	8,957	20,905	21,426	32,026	77,684
2002 Average	9,000	19,680	20,455	30,265	76,995
2003 Average	8,797	21,134	22,006	31,877	79,615
2004 Average	8,700	22,997	23,711	34,449	83,124
2005 Average	8,322	23,892	24,709	36,092	**84,631**
2006 Average	8,331	23,630	24,607	35,831	84,598
2007 Average P	8,481	23,117	24,299	35,429	84,594

Source: http://www.eia.doe.gov/ipm/supply.html, t44.xls

As this chart clearly shows, the world peak of oil production so far seems to have been reached in 2005, with 84,631,000 barrels of oil produced per day, 10 years before the projection of the most optimistic analysts!

Now, it is entirely possible that this number will rise slightly in the near future, because the "P" by 2007 indicates preliminary data, but even if the number does rise in the future, it just raises the peak slightly, it doesn't eliminate it. Finding new oil will merely buy us just a little more precious time, and that brings us to the second point.

Once we accept the notion that the production of oil *will* peak at *some* point in time — as the laws of physics dictate they must — then we need to face squarely the implications of that event, and take the most *prudent* course of action, given the *severity* of the consequences.

We believe that there is at least one, and probably more, correct course(s) of action to take, but in a world which readily assumes that decision making is *subjective*, we want to illustrate the *objectivity* of the course of action we are recommending with three analogous situations. Here is the first:

> A man walks into a 100-mile-long oasis-free desert with a gallon of water, drinking along the way. After traveling 20 miles, he has only ½ gallon of water left, and he will need to keep ingesting water at the same rate over the next 20

> miles to survive in the desert. What should he do, continue heading into the waterless desert, or head back to civilization?

Okay. Our first analogy shows us that once you accept the notion that committing suicide is a bad idea, then continuing to head into the desert is *out of the question*. For us in America when we map the analogy back onto our oil predicament, "heading backwards" would be *conserving gasoline while developing energy alternatives*.

Now let's look at an alternative version of the same analogy:

> A man walks into a 100-mile-long oasis-free desert with a gallon of water, drinking along the way. After traveling 20 miles, he has only ½ gallon of water left, and he will need to keep ingesting water at the same rate over the next 20 miles to survive in the desert. But then he sees, 5 miles further in, a canteen containing enough water to let him travel an additional 2 miles. What should he do, head into the desert to retrieve the canteen, or head back to civilization?

This is basically the same situation, the only difference that "heading for the canteen" represents the losing strategy of *using resources to find more oil instead of conserving gasoline while developing energy alternatives*.

As you can see readily in the above examples, once you accept the major premise that "it is good to survive", there is indeed a *correct* course of action, this stipulation of correctness being not an *opinion*, but a *fact*.

Let's further demonstrate this by moving on to our final analogy, one more involved, to show the role human perception has to play in exacerbating or improving a potentially catastrophic situation:

> Ten sailors were stranded on a sailboat, with the only provisions on the boat being ten gallons of water, a supply that was supposed to last *16* days given the normal *8* ounce ration of water for each sailor.
>
> What was known to all the sailors was that eventually they would land on an island, an island with virtually infinite supplies of water, and their task, needless to say, was to land there. Their best guess of landing time, before they did any hard analysis, was approximately *14* days. These sailors were uncertain, however, about the exact time of landing, since the distance to the island was not known, nor was the direction and speed of the wind. For example, wind blowing at 1 knot would make for a slow trip, wind blowing at 10 knots would make for a speedy trip, and wind blowing at 100 knots would make for a catastrophic trip. Because of these variables and different analytic techniques, they differed on the exact time of landing, dividing the sailors into three groups.
>
> The first group (three strong), consisted of the *Optimists*, who believed in "the power of positive thinking." They began their process of analysis by looking to history for examples of similar situations, and eventually dredged up an example of someone who had made it to the island in *10* days, so they were 100% sure that *they too* would arrive in *10* days (ignoring the previous expected arrival time of *14* days), even though they only came up with one example out of 100 of

that occurrence. Because of this belief, and given the *16* day water supply, they believed that no survival strategy was really necessary.

The second group (four strong), was known as the *Realists*. They took a more rigorous approach to the analysis of historical data, and their expectations were based on an analysis of meteorological information, including the history of prevailing wind patterns. Based on this research, they felt that the *10* day arrival time estimate by the *Optimists* was most improbable; instead, they saw as an 85% probability a landing on the island in not *10* days, and not the *14* days they previously thought was possible before doing their homework, but between *25* and *33* days, a time far exceeding the *16* days water supply, and one which would demand the creation and execution of a survival strategy, if indeed one was possible.

Then the final group (three strong) spoke up, the group known as the *Pessimists*, who ignored the available range of data and instead focused only on the worst-case scenario they uncovered. Using the lowest possible wind speed for their most likely propulsion, they were 100% sure their arrival time would be *50* days, leaving the other two predictions in their wake. Like the *Optimists*, they didn't need a survival strategy either, because according to their belief survival was *impossible*.

Here’s a table of the conclusions of the three groups:

	Optimists	**Realists**	**Pessimists**
Probability of Accuracy	100%	85%	100%
Predicted Arrival Time	10 days	25-33 days	50 days
Water Supply Without Rationing	16 days (*over* the Predicted Arrival Time)	16 days (*under* the Predicted Arrival Time)	16 days (*under* the Predicted Arrival Time)
Result of Normal Water Consumption if Prediction Accurate			

The *Realists* were the first to see the problem: if they were correct, consuming the normal ration of 8 ounces per day would, in effect, be *committing suicide*. If their predicted arrival time was correct, the minimum amount of water needed for survival would be *200* ounces of water per person, and there was only *128* ounces of water per person on the sailboat.

The *Realists*, who were interested in survival and had the data necessary for making an informed decision, didn’t feel like *taking a chance*. They decided to pursue a *rationing* strategy, and determined that the absolute minimum amount of water required for survival was *4* ounces per day given the ocean’s weather conditions. At this rate of consumption, they could survive on the sailboat for *32* days, which would be enough to get them to the island under all projected arrival times except their highest estimate of *33* days.

This analysis performed, the three groups of sailors decided to discuss their water situation.

The three *Optimists* spoke up first. “We advocate sticking with our normal *8* ounce ration of water. Why should we suffer? The island is only *10* days away. In fact, we’ll have lots of extra water, which we can use for other purposes, like cleaning our faces, brushing our teeth, and wiping down the mast.”

At this point the *Realists* spoke up: “That’s nuts. We have a chance to make it to an island which will have enough water for everybody, and all we have to do is hunker down for about *30* days with *4* ounces each. The only way to do that is drink a lot less water, and not throw the rest away to achieve goals which are, in this context, unnecessary at best and suicidal at worst. Sure, it’s not pleasant, but it’s the only hope of survival.”

At this point the *Realists* turned to the *Pessimists*, and asked, “what do you have to say?”

“Well, frankly, we couldn’t care less,” came the reply. “We’re not going to land on the island anyway, so it really doesn’t matter what course of action we take. But personally, we would rather live it up and drink our 8 ounces, cleaning our faces, brushing our teeth, and wiping down the mast before the bitter end.”

	Optimists	**Realists**	**Pessimists**
Usage	8 ounces + frivolous use	4 ounces	8 ounces + frivolous use
Belief in Survival Possibility	Yes	Yes	No
Belief That Rationing Would Be Helpful	No	Yes	No

“Okay, we have everyone’s opinion,” said one of the *Optimists*. “Now, let’s take a vote on what to do.” And the sailors voted, the results being 6-4 in favor of consuming 8 ounces a day + the frivolity allotment, *Optimists* aligning with *Pessimists* in one of the most amazing examples of the expression “politics makes strange bedfellows” the ocean had ever seen.

And so the *Optimists* and the *Pessimists* consumed their 8 ounces, while also cleaning their faces, brushing their teeth, and wiping down the mast.

And so they sailed. Alas, the optimistic projection of a *10* day arrival time went by the wayside. When they ran out of water after *14* days, the *Optimists* tried to steal the water from the *Realists* who had been faithfully conserving. A terrible fight ensued, with only one survivor, who happened to be a *Realist*.

Alas, for the final *Realist*, however, there was not enough water left to sustain even him. 10 days after the last *Realist* died of thirst, and *30* days after the original prediction, the boat washed up on the island’s shore.

That's the story. A tale not only of a dangerous overconfidence of *Optimists* and *Pessimists*, but ultimately a tragic tale of Shakespearean proportions, potential life sacrificed on the altar of short-term desire coupled with a lack of clear, analytical thought.

Of course, all of us can see that the actions of the *Optimistic* group of sailors were utterly non-rational, *objectively* incorrect; their ultimate decision to consume 8 ounces of water was wrong *even if* it had turned out that their projected arrival time of 10 days was correct, because the consequence of *error* was *death* for all on the sailboat. In the poker world, that type of decision is like going "all-in" with a pair of 2s — you might win, but you're most likely beat, so why risk the tournament on an utterly irrational bet (especially in a tournament where there is no bluffing!)?

The consequences of error by the *Realists*, on the other hand, were far less draconian: *a little extra thirst*, *unbrushed teeth*, and a *filthy mast*, undesirable experiences to be sure, but experiences vastly preferable to dying of thirst. They risked little to gain it all.

The *Pessimists'* decision to live it up to the bitter end was just as bad as the *Optimists*, because their decision turned a 50% chance of survival into a 100% chance of extermination.

As you have probably guessed by now, this story of the sailors provides an excellent analogy for our current "peak oil" situation. The analogy maps onto the Earth's peak oil crisis this way: the *sailboat* is Planet Earth, and the *sailors* are the 6,800,000,000 humans on the planet. The *water consumed by the sailors* is gasoline (and other petroleum products), and the *island* with perpetual water flow stands for a world with renewable energy sources such as wind, solar, wave and geothermal sources, which never run out.

The main point to understand is that *maintaining civilization in the 21st century depends exclusively on our getting to the island* (renewable energy sources), and even though there was a 50% chance we could make it to the island without rationing and/or otherwise conserving our water (oil) — and there isn't — why take the chance when the stakes are so high? Excessive optimism can be hazardous to your health and the health of other living things!

To remove the risk inherent in the non-conservation strategy of the *Optimists* and *Pessimists*, they would have to have been nearly 100% confident that conservation was not necessary. And that prediction would have to be *accurate*.

Now, who out there is *100%* confident that we can continue to burn through our diminishing oil supply at the current rate without conserving and still be able to develop in the future the alternative energy sources we'll need, using far more expensive fossil fuels than we have now? Anyone?

Of course, if the peak oil event has even a 10% chance of being true — and the laws of physics declare it to be 100%, not 10% — then conservation is not just an *option*, it's an *imperative* for a society fueled by oil, and the *Realistic* strategy is the *only* rational course of action: conserve mightily and sail towards that island!

In case anyone out there is still not yet convinced, consider the following cautionary fable from Geologist Kenneth S. Deffeyes, Professor Emeritus at Princeton University, who after predicting the peak oil event in 2005 in his book *Hubbert's Peak: The Impending World Oil Shortage,* had this to say on pages 174-175:

> When my parents retired to a farm in Oklahoma, they hired a bulldozer and built a pond. Stocked it with bass. Good fishing, good eating. Gradually, however, they began catching fewer bass, and catching enough for dinner required longer and longer hours. There are two possible reactions:
>
> - Buy ever more expensive fishing tackle, because there might be a great lunker of a bass still hiding deep in the pond.
> - Substitute fish from the grocery store and pick up something other than fishing for a hobby.
>
> The finite supply of world oil is, in my opinion, written in stone. It's not engraved on the façade of the treasury building. It's written in the reservoir rocks, the source rocks, and in the cap rocks. No amount of fancy fishing tackle is going to satisfy our appetite for oil.

With these cautionary edicts in mind, let's explore one *Realistic* strategy known as *Operation Energy Transition,* and how the *Intelligent Community Initiative* will bring it about.

Operation Energy Transition

The first point to understand about *Operation Energy Transition* is that it takes a radically different tack than other proposals. For example, many responses to the peak oil crisis being floated in the media today center around alternative fueling strategies: will our cars be powered by fuel cells? Liquefied natural gas? Ethanol? Biofuels? Or should we stick to oil, and move to offshore drilling in previously forbidden locations, or instead manufacture liquid fuels from shale or tar sands?

These suggestions, while well intentioned, miss the mark, since they underestimate the gravity of the situation while simultaneously promising to commit billions of dollars of resources to technologies which are functionally obsolete (and even unnecessary) instead of allocating resources to alternatives far more economically viable and sustainable.

Times like these demand that we ratchet up our ingenuity quotient, so let's change gears here.

Instead of accepting the major assumption that finding the solution to the peak oil crisis will solely revolve around rolling out alternative fueling strategies, let's think out of the box, and question this major assumption, which is as follows:

That the only possible transportation paradigm we *can* have is the transportation paradigm we *currently* have.

Just the slightest bit of thinking will tell you that this assumption isn't necessarily true, and a little more thinking can point us in a far more cost-effective and ultimately rewarding direction.

So let's raise the question: is our current transportation paradigm the only one possible?

For the moment, let's assume the answer is "no". We'll explore this assumption with a thought experiment:

How we would survive if *no one owned a car*, not because there *aren't* any cars, but because no one can *afford to own one*?

Just imagine it: you live in a neighborhood, call it Biltmore Park or Woodhaven or any one of thousands of similar development names, and now imagine the homes in your development have not one car parked in a garage or driveway, but also imagine that life needs to go on for you just like it does today: you still have to get to work, you still have to get the kids to soccer practice, you still have to shop, go to the doctor, and perform dozens of miscellaneous errands — except now you have no car. How?

It seems like an impossible task, but let's think things through, and see if there's a way out.

Remember here the critical point which we established for our thought experiment: it's not just *you* who can't afford a car, *no one* in your neighborhood can either. Does that mean that the neighborhood residents are destined to remain homebound? Sure — but *only* if they don't communicate and organize with each other. Once they communicate with each other and organize the way out of their predicament emerges:

They realize that while they can't afford to own a car *individually*, they can afford to *share* ownership.

Let's flesh this scenario out with some details, and watch our new paradigm evolve.

The residents of the neighborhood have decided to purchase an electric car, since they realize that investing in financially and environmentally obsolete technology such as the internal combustion engine really makes no sense. The cost of this car is $40,000, an electric car that travels 250 miles on a charge with the latest battery technology, which doesn't come cheap.

But all is not lost: when the residents of the neighborhood do the math ($40,000 divided by $10,000), it turns out that *four* households can share *one* car. This means that the "no car" alternative — unacceptable — can be rejected in favor of the "shared car" alternative.

Now this makes financial sense, but there are logistical details which need to be worked out which would normally threaten to deep-six financial innovations like this; for example, how is ownership to be managed? Do all four names go on the title, or should an LLC be formed that takes ownership, with each person instead owning a share of the LLC? How would fixed costs like insurance and variable costs like gasoline be apportioned? If two or more people want to use the car at the same time, how do they decide whose needs take precedence? Should there be limits on how many miles a person can drive, or limits on destinations a person can visit? How many reservations does a household get per month, or should allocation be based instead on miles or time? Suppose someone wants to take the car for a week-long vacation: what then do the other people do who want to use the car?

As you can see, there are real issues involved in pursuing this "shared ownership" strategy. The transaction costs involved in making this financially intelligent arrangement are significant: so significant that most neighborhoods would find resolving these issues beyond their ability, and a good idea would remain merely that.

This is where the *Intelligent Community Initiative* comes in. Common sense tells us that there is *some* resolution to this problem, but if finding the resolution takes hundreds of hours, a neighborhood is going to be less inclined to take on the task — by itself. But, if, on the other hand, the neighborhood can *share the work* of finding the solution with *thousands* of other neighborhoods, then one neighborhood's solution time share is *less than an hour*!

So immediately we can see that the *Initiative* brings an enormous benefit: *economy of scale*. A solution rolled out for *one* neighborhood can be rolled out for *thousands* of neighborhoods at little additional cost.

There are other benefits to the *Initiative*, which will be covered later, but let's return to our thought experiment, which has already revealed one of the primary solutions to the peak oil crisis: to reject the assumption that the only resolution to the peak oil crisis involves finding alternative fuels. That assumption itself assumes that a one or two-car per household paradigm, which is by no means necessary.

Analysis by one of the *Initiative* teams devoted to the purpose has done the analytical work for one neighborhood, and here's the plan they came up with:

The neighborhood has 400 homes. Each home has $10,000 to spend on a car. This means that neighborhood can afford to purchase a fleet of 100 cars! Now, a fleet of that size instantly solves a number of issues which would be presented if the neighborhood only had car, such as what to do when someone reserves a car for a week: just reserve one of the other cars!

Here's the good news: *Initiative* analysis shows that a fleet of that size would be overkill since the highest number of cars that would be utilized at any single time would be 35. That will free up money for the purchase of other vehicle types besides cars; for example, electrically powered pickups and passenger vans.

This still leaves a vast amount of money, which can be used to purchase photovoltaic solar panels and windmills; these can be used to charge the cars when they are not in service.

Now, where will the cars be stored? They can be stored in one or more convenient locations in the neighborhood, no more than ½ mile from any one house. Special lots can be created for the purpose, and each lot can be reached either by walking, bicycle, or some form or electrical transport such as electric bicycle, scooter, motorcycle, or moped.

The scheduling/reservation of the cars will be handled through *Initiative* software designed expressly for the purpose, all browser-based so that each person can make a reservation from their home.

[TO BE CONTINUED]

The Strategies

Operation Energy Transition is comprised of three strategies:

1) **Extraordinary Conservation;**
2) **Fast-Track Development of Alternatives; and**
3) **Re-Architecting Society.**

Let's examine these strategies in order, and see how the *Initiative* will bring them about.

The Extraordinary Conservation Strategy

Conservation is the ultimate short-term survival technique. It is, essentially, a *preemptive* strategy. Once gasoline moves to $8 a gallon, people are going to start conserving anyway, right? So the idea of the conservation strategy is to move that inevitable human behavior to a time when its impacts are best managed, and away from the time when rescuing ourselves will be significantly less probable.

Apart from its remediation of risk the conservation strategy has other advantages, the chief one being that, in most cases, either *no or very little capital expenditure is required to receive a benefit*. Being either a cost-free or cost-effective strategy, therefore, it allows the maximum number of people in society to participate. We can't all buy a plug-in hybrid, but we can all turn off our lights when they aren't in use.

The notion of conservation is that it is preferable to *make* $100 by *saving* $100. It is much cheaper to add 350 gallons of gasoline to your energy stock by refusing to burn it than to purchase 350 gallons outright, correct? And that's its power, trading a small inconvenience for conservation of the capital necessary to move to a new technological paradigm: a small price to pay for survival.

Nine Types of Conservation

Conservation is a broad term, encompassing nine sub-types of conservation:

1) **Curtailment: Complete**
2) **Curtailment: Graduated**
3) **Efficiency**
4) **Product Substitution**
5) **Power Substitution**
6) **Enhancement**
7) **Zoning**
8) **Resource Pooling**
9) **Incentives**

Here are examples of each of the conservation strategies, with reference to the topic of *cooling one's house with air conditioning*:

1) **Curtailment: Complete**
   You do not turn your air conditioner on.

2) **Curtailment: Graduated**
   You move the temperature on your thermostat from 68° to 72°.

3) **Efficiency**
   You swap out an air conditioner which costs *$250* a year to operate for one which costs *$125* a year to operate.

4) **Product Substitution**
   You use a fan instead of an air conditioner.

5) **Power Substitution**
   You power your air conditioner with solar cells instead of AC power.

6) **Enhancement**
   You run a fan along with the air conditioner to create a chilling effect, which allows the air conditioner to be run less often (and/or you wear shorts in the room to allow better cooling).

7) **Zoning**
   You use a window unit instead of central air to concentrate the cold into a small room. It is much cheaper to cool 150 square feet than it is to cool 2500 square feet, and the air doesn't have to travel as far (with the concomitant loss of temperature) to achieve cooling.

8) **Resource Pooling**
   Your neighborhood buys a portable air conditioner, and each member of the "air conditioner pool" gets to use it one week a month.

9) **Incentives**
The power company gives you a rebate if you do not use your air conditioner, and/or a “feebate” (usage charge above the norm) if you use it excessively.

Of course, some of these ideas consume more power than others, some are more expensive than others, and some are more or less practical than others. Whether or not one or more of these types of conservation strategies will be more practical than the others will of course depend on the situation. For example, *Resource Pooling* might not be an effective approach when the resource is a portable air conditioner, but it might be an excellent approach in other contexts, such as a neighborhood sharing use of a pickup truck.

Now that we have gone over the types of conservation strategies, let’s see examples of them in action. What follows is an incomplete menu of some of the conservation strategies *Operation Energy Transition* will be implementing.

The Menu of Conservation Options

- Conservation
  - Transportation
    - Private Initiatives
      - Telecommuting
      - Videoconferencing
        - Telepresence
        - SightSpeed
      - Distance Learning
      - More efficient localization of employees (employees living near work)
      - Greater use of and increased public transportation
      - Movement to Alternative Private Transportation
        - Electric Bicycles
        - Utilization Of More Efficient Vehicles Such As Bicycles
        - Electric Scooters
        - Electric Motorcycles
      - Hub and Spoke Transportation Routing
      - Four-day workweeks
      - Consolidation of trips
      - Community Taxi (Intelligent Community Software Required)
        - Intellitaxis
      - Neighborhood Pooling (Intelligent Community Software Required)
        - Vehicles
          - Cars
            - Purchase Electric Vehicles
            - Vans
            - Pickup Trucks
          - Bicycles
        - Tools
      - Composite Transportation
        - Large vehicles which transport bikes
      - Park and Ride Lots
      - Bus
      - Grocery Delivering: amalgamating orders

        - Zoned Classifieds
        - Neighborhood job scheduling
        - Onsite Automobile Maintenance
        - Car Sharing
        - Carpooling
        - Routing Optimization (Intelligent Community Software Required)
    - Government Initiatives
        - Legislation
            - Rationing
            - Government Production of Silicon Factories
                - WSJ: Solar: price to make = $40 per kilogram, sold for $400 per kilogram
            - Limitation on credit card purchase
            - Congestion Pricing
            - Tax credits to businesses which subsidize public transportation
            - Rollback/Void anti-renewable declarations and restrictive covenants
            - Green Building Codes
                - Skylights
                - Maximize exposure to daylight
                - Minimum daylight illumination for 75% of occupied space (natural daylight)
                - Southern Orientation
                - E-Windows
                - Passive Solar
                - Motion sensors for lighting
                - Solar Required
                - High Insulation Required
            - Feebates
                - Taxing of products with excessive energy impacts (e.g. excessive electric usage, bottled water, etc.)
            - Price Maintenance Tax
            - Car-free zones
            - High subsidies for public transportation (unlimited free rides)

        - Landfill Tax
        - Transportation Advantaging
      - Re-Architecture
        - Electrified national Railway
        - Bus Express Lanes
        - Bike Paths
        - Pedestrian Streets
        - Bus Nodes
        - Rail Nodes
        - Rail to Bus Connection
        - Rail To Bus To Bike Holding Vehicle Connection
- Energy
  - Household
    - Use of electric blankets and space heater instead of central heat
    - Automatic Thermostats
    - Smart Meter
      - WSJ
    - More efficient appliances
    - Saving water bottle and filling them from the tap.
    - Installation of motion detectors for lighting
    - Adjustment of thermostats for "least comfort necessary" with replacement of manual thermostats with automatic thermostats
    - Energy retrofit
    - Accelerated movement to higher efficiency appliances
    - Internal Recycling
    - Use of electric blankets and space heaters
    - Greater use of dimmers
  - Business
    - Compressed Workweek
    - Modification of Dress Codes
      - Not requiring jackets in office environments means that AC temperature can be increased, maintaining the same comfort level.
  - Local services amalgamating deliveries

        - a shift from truck usage to rail
            -
    - Economy
        - Shared Neighborhood Food Purchasing
        - Bulk Purchase With Sharing
- Alternative Energy
    - Green highway (HVDC lines)
        - WSJ
    - Solar Thermal Power
        - Distributed
            - Hot Water Heaters
            - Pool Heaters
        - Centralized
            - Solar Thermal PDF
            - Grid Storage
                - http://www.dailytech.com/Bright+Ideas+Fuel+Grid+Storage+Technology+Taking+Off/article12211.htm
    - Photovoltaic
        - Distributed
            - Grid-Tied
            - Off-Grid
        - Centralized
    - Windmill
        - Distributed
            - Grid-Tied
            - Off-Grid
        - Centralized
    - Biomass
    - Geothermal
        - Volcano
            - http://www.dailytech.com/Alaska+Turns+to+Volcanic+Energy+as+Alternative+Energy+Source/article12229.htm
        - Conventional

- What Will Not Be Pushed
  - Nuclear
  - Coal w/sequestration
  - Fuel Cell
  - Ethanol
- Re-Architecture
  - Localization
  - Pedestrian cities
  - New Urbanism
    - Creation of bike lanes
    - Bike Path
    - Sidewalks
    - Bicycle Master plan
  - Green Developments
    - Soundproof
    - 400 $ft.^2$ per person maximum
    - Skylights
    - Solar Photovoltaic
    - Solar Thermal
      - Back up with Natural Gas/Wood Chips
    - High Insulation
- Why The Initiative Is Necessary For Launching And Integrating These Strategies

ADDITIONAL COMMENTS

Telecommuting

This is the lowest of the low-hanging fruit of conservation strategies. About 40% of the nation's workforce, at least, have jobs involving use of a computer and/or telephone. If there are 100 million of these workers, and each worker consumes an average of 500 gallons of gasoline driving to work, telecommuting by all of these workers would save fifty *billion* gallons of gasoline a year, more than enough fuel to fund the manufacture of tens of thousands of windmills and solar panels. Technologies introduced in the beginning of the century around collaborative meetings and video conferencing, along with virtual private networks, makes this strategy more viable than ever. The fact that 12.6 million corporate employees in America worked from home at least 8 hours a week (according to GreenBiz.com's state of Green Business 2008 report) proves that telecommuting is no "fringe" strategy, and that it most likely can be easily extended to many other non-telecommuting workers.

This is not just the most *effective* conservation strategy we could deploy, but also the *most painless*. Not only is it good for the workers, who have less stressful lives and more money in their pockets, it is also good for the businesses who have more grateful (and productive) employees. Best yet, it frees up capital expenditure, allowing us to channel resources that would have evaporated into the air into building power-generating windmills and solar installations.

Compressed Workweek

As great as the telecommuting option is, it won't be practical for many businesses. But those businesses demanding face-time can in many cases, move to a four day workweek of 10 hours a day, or a 3 day workweek of 13 hours per day.

Purchase of Electric Vehicles

Retrofitting of Internal Combustion Vehicles (electric motorcycles)

Modification of Dress Codes

Not requiring jackets in office environments means that AC temperature can be increased, maintaining the same comfort level.

Internal Recycling

Saving water bottle and filling them from the tap.

Feebates

Taxing of products with excessive energy impacts (e.g. excessive electric usage, bottled water, etc.)

Shared Neighborhood Food Purchasing
Grocery Since Delivery: amalgamating orders (pickers deliver to buses)