TENNESSEE VALLEY AUTHORITY BOARD

LISTENING SESSION

ON

ENERGY EFFICIENCY/DEMAND RESPONSE

AND RENEWABLE ENERGY

MARCH 4, 2008

701 HENLEY STREET

KNOXVILLE, TENNESSEE

DAY I OF II

NATIONAL REPORTING AGENCY
1255 MARKET STREET
CHATTANOOGA, TENNESSEE 37402
(423) 267-8059

LISTENING BOARD

TOM KILGORE
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DENNIS BOTTORFF
HOWARD THRAILKILL
DON DEPRIEST

TVA MODERATOR: GIL FRANCIS

- - -

PANEL I - POLICY

PANEL II - ENVIRONMENT

PANEL III - INDUSTRY/TECHNOLOGY

PUBLIC COMMENTS

13:00:22 1 MR. SANSOM: Good afternoon, everyone.
13:00:24 2 We'll get started. First I want to thank all of
13:00:26 3 you for coming. I'm Bill Sansom on the TVA
13:00:30 4 Board and we welcome all of you to come and
13:00:34 5 participate in a session that's very important
13:00:38 6 to TVA, very important to all of us in the
13:00:40 7 Valley, so we appreciate you coming here to do
13:00:44 8 that.
13:00:44 9 As we worked on our strategic plan, we
13:00:50 10 learned from input and others that energy
13:00:52 11 efficiency was very important to TVA and all of
13:00:56 12 us that were new to this Board learned right
13:01:00 13 quick that we were sure going to have a hard
13:01:02 14 time building enough capacity to satisfy our
13:01:04 15 needs and so this energy efficiency is very
13:01:06 16 important to what we do and so we appreciate you
13:01:10 17 recognizing that with us and look forward to
13:01:12 18 hearing from this panel on -- to talk about
13:01:16 19 that.
13:01:18 20 I might mention that because of this
13:01:22 21 importance, we've created an ad hoc committee,
13:01:24 22 if you will, and I might say, before I say that,
13:01:28 23 we're a slipped-down Board. We've got a few
13:01:34 24 people that have not been confirmed or
13:01:40 25 reconfirmed and one of them is sitting down

there, Susan Williams. Thanks for coming. Susan has always been interested in conservation and I'm sure she's here today to listen to what you say, too.

But, anyway, we created an ad hoc committee that's made up of three of our committee chairmen, because this thing flows through several of our committees, and they've elected Denny Bottorff to be chairman of this ad hoc committee on conservation and energy efficiency in demand side. And with Denny would be -- is Howard Thrailkill who is the chairman of operations committee and also Don DePriest who is the chairman of community relations committee and also our corporate governors committee. And he's there -- Susan was there in that role. She's not now because of this confirmation, so Don has taken on that role.

So this is important to us. We're using three of our committee chairs to do this ad hoc committee and we know it's important to you and appreciate you being here today to address us.

So with that, Denny, I'm going to let you take over.

13:02:50 1 MR. BOTTORFF: Well, thank you, Bill.
13:02:52 2 As Bill said, I think it became obvious to us as
13:02:54 3 we wrapped up this strategic plan that the best
13:02:58 4 way to really balance the supply and demand was
13:03:02 5 to also have a very effective energy efficiency
13:03:06 6 and demand reduction program. And I just want
13:03:08 7 you all to know that we know that it's both the
13:03:10 8 cheapest and the greenest way to be able to meet
13:03:14 9 demand is to save a kilowatt hour.
13:03:18 10 Today is kind of the first step towards
13:03:20 11 gathering ideas. We have -- we've got some
13:03:22 12 goals that were set out in the plan. We're
13:03:24 13 going to -- those are just place holders, so to
13:03:28 14 speak. Out of this will probably come more
13:03:32 15 precise goals and certainly more precise action
13:03:36 16 steps. So what we want to do now is kind of
13:03:38 17 begin to listen to you for the formulation of
13:03:40 18 those plans, which our thoughts are to produce a
13:03:42 19 draft document of that plan in the month of
13:03:46 20 April, which we'd go back out for comments and
13:03:48 21 finalize it shortly thereafter.
13:03:50 22 So at this time, let me call on Joe
13:03:54 23 Hoagland. Joe will make some brief remarks.
13:03:58 24 Joe, as you know, all of you know, I think, was
13:04:00 25 designated as the person to lead this effort.

13:04:04 1 So we've got some real professional resource
13:04:06 2 focus on this within TVA. So, Joe, thank you.
13:04:10 3 MR. HOAGLAND: Thank you, Director
13:04:12 4 Bottorff, and good afternoon. I also want to
13:04:16 5 thank everybody for coming. I'm very excited
13:04:18 6 about this effort because to make an energy
13:04:22 7 efficiency program truly work, it requires the
13:04:24 8 public's input and the public's support and I
13:04:26 9 think this is a first step in meeting that.
13:04:30 10 What we have this afternoon is a very
13:04:34 11 diverse and, I think, strong panel of experts on
13:04:40 12 energy efficiency from across the nation, across
13:04:44 13 our region, and within the Valley itself who are
13:04:46 14 going to provide, I think, some very good ideas,
13:04:52 15 points of view that we can use and think about
13:04:54 16 in our -- as we go forward with our plans.
13:05:02 17 Tomorrow we'll have an additional panel that
13:05:04 18 will address renewable energy itself kind of as
13:05:06 19 a separate topic.
13:05:08 20 And as you all are aware, this is an
13:05:12 21 outgrowth from the strategic plan and the fact
13:05:16 22 that our growth in the Valley is happening at
13:05:18 23 such a pace that we can't build fast enough, so
13:05:24 24 we need to think about what are the best ways to
13:05:26 25 reduce that load through energy efficiency

means. Today is really a good opportunity to get that from a lot of different perspectives.

And in addition to that, we're also going to hear from our distributors today and our directly served industrial customers and get their perspectives on energy efficiency and how they see that working. Again, that will be important for us because there has to be a strong partnership, I think, between us, our distributors and direct serve customers on how we effectively make those happen.

I really look forward to today and I hope that you will find this informative and I'll just close there and say thank you.

MR. BOTTORFF: Thank you, Joe. I expected you to wear a green tie or shirt or something today. The moderator for today is going to be Gil Francis. What we're going to do is Gil is going to moderate this, introduce each of you. This is not just a listening session. It's a dialogue session. But the Board, really, is going to wait until after each of you have made your comments and then there will be time for some Q and A at the end of that. So, Gil, we'll hand it over to you.

13:06:40 1 MR. FRANCIS: Thank you. Thank you
13:06:40 2 very much. Two quick housekeeping items.
13:06:44 3 Restrooms through the main door. Go past the
13:06:46 4 escalators, short hallway, restrooms on your
13:06:48 5 right. And please turn off all cell phones.
13:06:52 6 Today we'll hear from three panels.
13:06:56 7 Each panel consists of four panelists who will
13:06:58 8 make comments of 10 minutes each. Following
13:07:02 9 their remarks, members of the Board may have
13:07:04 10 questions or follow-up questions of the
13:07:08 11 panelists. Following the last panel discussion
13:07:10 12 today, there will be an hour for comment from
13:07:12 13 those in the audience who have registered to
13:07:16 14 address the Board.
13:07:16 15 Our first panel will discuss energy
13:07:18 16 efficiency and demand reduction policy. Members
13:07:22 17 of this panel from left to right, John Davies,
13:07:28 18 Director Division of Renewable Energy and Energy
13:07:30 19 Efficiency for the Kentucky Governor's office on
13:07:34 20 energy policy; Jeffrey Harris, Vice President
13:07:38 21 for Programs at the Alliance to Save Energy;
13:07:44 22 Maureen McNamara, Program Coordinator for EPA/
13:07:50 23 Energy Star; and Paul Sloan, Deputy Commissioner
13:07:52 24 of Environment for the Tennessee Department of
13:07:54 25 Environment and Conservation. We'll now begin

13:07:58 1 with Director Davies.
13:08:02 2 MR. DAVIES: Very good. Thank you.
13:08:04 3 And I'd like to thank the Board for the
13:08:08 4 opportunity to highlight the various energy
13:08:08 5 efficiency initiatives that are under way in
13:08:12 6 Kentucky. It's my hope that these initiatives
13:08:16 7 will demonstrate what is possible through your
13:08:18 8 service area and help you shape your energy
13:08:20 9 efficiency and demand response programs.
13:08:24 10 I have had the pleasure of serving in
13:08:26 11 this capacity for the past seven years and
13:08:28 12 watched energy efficiency grow from a personal
13:08:32 13 virtue to the fifth fuel in relatively short
13:08:34 14 order. Given the advancements and the
13:08:36 15 technology and the protected increases in energy
13:08:38 16 costs, I believe that energy efficiency is a
13:08:40 17 viable resource and must be part of our nation's
13:08:44 18 energy mix and we can no longer afford to apply
13:08:46 19 only supply side fixes to meeting our increasing
13:08:50 20 energy demands. Energy efficiency, as I pointed
13:08:52 21 out earlier, is the cheapest, cleanest, and the
13:08:54 22 quickest way to meet America's growing energy
13:08:58 23 demand.
13:08:58 24 Today we see more energy efficiency
13:09:00 25 activity in Kentucky than ever before and this

13:09:04 1 interest is from all sectors, be that
13:09:06 2 residential, commercial, or industrial. This
13:09:08 3 interest is driven by higher energy prices,
13:09:12 4 concern over the environment, and productivity
13:09:14 5 health, building value, and budgets. We believe
13:09:16 6 this interest will grow especially as energy
13:09:18 7 prices continue their upward trend.
13:09:22 8 Kentucky has a long history of enjoying
13:09:24 9 low electricity prices driven by abundant fossil
13:09:30 10 fuel resources. Our low prices have encouraged
13:09:30 11 Kentuckians to use more electricity and give
13:09:32 12 little regard to energy efficiency.
13:09:34 13 In 2006 our electricity prices were
13:09:38 14 39 percent below the national average, yet our
13:09:42 15 electricity bills were only 6 percent lower than
13:09:46 16 the national average. And this tells us that we
13:09:48 17 are energy intensive. Our electricity per use
13:09:50 18 for the residential -- per customer per the
13:09:52 19 residential sector is 24 percent higher than the
13:09:56 20 national average and for our industrial sector
13:09:58 21 it's 427 percent higher. In fact, Kentucky,
13:10:02 22 Tennessee, Alabama, and Mississippi are all in
13:10:04 23 the top ten of the most energy intensive states
13:10:06 24 in the nation. This is opportunity for energy
13:10:10 25 efficiency.

13:10:12 1 A recently conducted -- completed study
13:10:14 2 by the University of Louisville found that
13:10:16 3 improved efficiency could meet all of the growth
13:10:18 4 in Kentucky's energy demand projected by 2017.
13:10:24 5 Under the moderately aggressive scenario, the
13:10:26 6 annual energy savings would represent more
13:10:26 7 energy than 300,000 households use each year.
13:10:32 8 Over a 10-year period, the accumulative
13:10:36 9 potential for improved energy efficiency would
13:10:36 10 save Kentucky 449 trillion BTUs and
13:10:42 11 $6.8 billion. This amount of energy is
13:10:44 12 equivalent to the power that three 500 megawatt
13:10:46 13 power plants would generate over a 10-year
13:10:48 14 period.
13:10:50 15 Kentucky's energy efficiency potential
13:10:52 16 is large and relatively untapped. We believe
13:10:54 17 that efficiency offers us the opportunity to
13:10:58 18 help find balance between energy demand and
13:11:00 19 capacity, thereby keeping Kentucky competitive
13:11:04 20 in a challenging world market.
13:11:08 21 For the sake of time, I've prepared a
13:11:12 22 handout that highlights our various energy
13:11:12 23 efficiencies from last year. These initiatives
13:11:14 24 range from working with our home builders to
13:11:16 25 building more energy efficient schools to

working with our regulated utilities to develop an effective demand side management programs.

If there is one underlying theme for all these activities, it's that we promote and develop energy efficiency opportunities through partnerships. Using partnerships, we are able to leverage resources, talent, and time to achieve tangible results. Working with our partners, we use the Energy Star program as a common platform. In this way, Kentuckians learn about the benefits of superior energy efficiency from many different sources, be that electric service provider, builders, retailers, state and local governments, manufacturers, and others. We see great value in leveraging this national program.

Energy Star is well known, represents quality, and is trusted by consumers. The program enables us to find synergies and build partnerships between what I call non-traditional partners, partners that only come together to promote Energy Star program and brand.

In my remaining few minutes, let me highlight some of our energy efficiency activities. Kentucky became only the fourth

state in the nation to be declared an Energy Star partner by the U. S. Department of Energy and EPA. Program efforts have increased the number of Energy Star certified buildings in Kentucky by 600 percent and certified homes by 71 percent since 2005.

We are proud of the fact that we have 12 Energy Star labeled schools, with more on the way. We find that these schools use 30 to 45 percent less energy than conventionally built schools and save between 25,000 and $50,000 per year per school. Currently we're in discussions with the Kentucky Department of Education, Duke Energy, local architects and engineers to design and construct two net zero energy school buildings.

As of last month, we have 1,550 Energy Star labeled homes. Cumulatively these homes will save the homeowners over $600,000 in energy costs annually. We anticipate this number of homes will increase significantly, especially as our home builders associations in Lexington, Louisville, and Northern Kentucky have embraced the Energy Star New Homes Program. They have found that Energy Star homes sell faster, even

in a depressed housing market.

E.ON, our largest regulated utility, has recently filed a revised demand side management program with the Kentucky Pollution -- Public Service Commission. This plan is more aggressive than any previous plan and increases DSM spending by nearly three fold. Included in the plan is an Energy Star new homes program that will incorporate both home raters and home builders.

This program came about through E.ON's DSM collaborative. We have found that a collaborative can provide an effective forum to exchange ideas and discuss issues related to DSM.

It is also important that Kentucky adopted the 2006 International Energy Conservation Code for residential and commercial buildings. Even though one can say that building the Code is the worst building you can legally build, it is important to have a baseline standard. Using a baseline we can show Kentuckians why building better than Code will reduce energy use, save them money over the long run, and lessen the impact on the environment.

Currently we have 22 buildings labeled Energy Star in Kentucky and they include schools, courthouses, office buildings, groceries, manufacturing plants, and hotels. By having this diversity in buildings, we are able to demonstrate to Kentucky's builders, architects and owners that Energy Star is an effective protocol that produces results.

Kentucky's industries also find value in collaborating the Energy Star. Both General Electric in Louisville and Toyota and Erlanger are national, award-winning Energy Star partners since 2005. The Toyota Camry manufacturing facility in Georgetown is Energy Star labeled along with our Northern American headquarters and Erlanger. We -- I have no doubt that Toyota will bring their enthusiasm for Energy Star to their Highlander plant in Blue Springs, Mississippi, especially since Toyota has designated the Highlander plant to be a model of sustainability. Energy Star helps our industries lessen their impact on the environment while helping them remain competitive.

Last year during a special session,

Kentucky legislature passed House Bill 1 that provided over a hundred million dollars in State incentives for the production of alternative transportation fuels as well as incentive for manufacturers to improve energy efficiency of their operations. Just last Friday legislation was introduced to promote the construction of homes and state-owned facilities to meet Energy Star standards. There are many more energy efficient activities in Kentucky, but I'll stop there.

To conclude, I would like to share three recommendations that I will hope you consider as you develop your energy efficiency and demand response policies. First, use Energy Star as your energy efficiency outreach and marketing platform. Use this well-recognized and understood brand to leverage existing Energy Star partners throughout your service area to have greater impact and better results.

Second, as you develop your demand side management programs, include stakeholders using a collaborative process to help provide a perspective that can lead to higher program adoption and stronger participation by your

customers.

And, last, become involved with a residential and commercial building energy code process throughout your service area. Having established energy codes, keeping codes current, and validating that codes are applied will help improve the energy efficiency of your building stock in your service area. Also, I would encourage you to help train builders, architects, and engineers on how to build better than code houses and buildings.

I thank you for your -- for the opportunity to share my thoughts and I do hope that they will help you achieve, if not surpass, your goal of reducing demand growth by 1200 megawatts. Thank you for your time.

MR. FRANCIS: Thank you, Mr. Davies. Mr. Harris.

MR. HARRIS: Thank you very much. As Gil mentioned, my name is Jeff Harris and I'm the Vice President for Programs at the Alliance to Save Energy. I do have some written remarks. I will touch lightly on some of the things I was going to say since I'm following my distinguished colleague, Mr. Davies, who already

13:18:04 1 covered some of the same points.
13:18:04 2 The Alliance to Save Energy celebrated
13:18:08 3 our 30th anniversary last year as a nonprofit
13:18:12 4 coalition of more than 130 business, government,
13:18:16 5 environmental, and consumer leaders around the
13:18:18 6 country. Under the leadership of our chair,
13:18:20 7 Senator Mark Pryor, and our co-chair, Jim
13:18:22 8 Rogers, the CEO of Duke Energy, the Alliance's
13:18:26 9 mission is to advance energy efficiency
13:18:28 10 worldwide in order to achieve a healthier
13:18:32 11 economy, a cleaner environment, and greater
13:18:34 12 energy security.
13:18:36 13 The Alliance is also a cofounder of
13:18:38 14 another alliance in this region, the
13:18:40 15 Southeastern Energy Efficiency Alliance, or
13:18:42 16 SEEA. In less than two years, SEEA has brought
13:18:46 17 together more than 25 business, government,
13:18:48 18 utility, and advocacy organizations to support
13:18:50 19 energy efficiency in the 11 Southeastern states.
13:18:54 20 We're very pleased that TVA is represented on
13:18:56 21 the SEEA Board of Directors by Joe Hoagland.
13:19:00 22 One of the latest SEEA initiatives
13:19:04 23 co-led by the Florida governor, Mr. Crist, and
13:19:06 24 Tennessee Governor Bredesen, is helping to forge
13:19:08 25 a new coalition among the region's governors to

advance energy efficiency policies and programs here in the Southeast.

Today we're very pleased to be able to offer some comments that we hope will help TVA to develop and implement new long-term energy efficiency strategies. I'd like to touch briefly in three areas. One has to do with setting very clear and strong goals and tracking progress towards those goals, the second has to do with some comments on program development, and the third with program measurement and evaluation. Again, in my written comments, there's a little more detail, some websites, and some summaries that we've also provided of some of the programs I want to mention.

Let's start with goal setting and tracking of progress. Faced with the pressures that were mentioned earlier, rising and increasingly volatile fuel prices, multiple years of low rainfall and regional economic growth that continues to drive energy demand, TVA is forecasting a need for 6 to 12 gigawatts of increased capacity over the next 10 to 15 years. And with the announced emphasis of the Board on energy efficiency as a means of

helping to meet demand growth, as this committee has taken on, TVA has adopted the interim goals that we've seen, an initial 64 megawatts of savings this year from the current programs and from some new pilot programs, and potentially 1200 megawatts or more five years from now.

TVA is in the process of conducting the market potential study that will help you identify where the opportunities lie for efficiency, for conservation, and for peak load management. Even though the results of the study is not yet available, we are recommending that TVA look carefully at a long-term goal and in our view its reasonable and, in fact, a good starting point to adopt a goal for energy efficiency and demand management to offset at least half of the projected energy and peak load growth in the region over a 10- or 20-year period. So if you do the numbers based on last summer's peak load of 33 thousand almost 500 megawatts and a projected growth of around 2 percent per year, this translates to a savings goal 10 years from now of about 3500 megawatts.

Realistically, I think we recognize that it will take time to design and ramp up

demand side management programs, so in the early years it may be realistic to have a goal somewhat lower than 1 percent of sales as new savings added each year. On the other hand, if five years from now you hope to be at 1200 megawatts of savings, this will call for an acceleration of the pace of programs in the second five years in order to reach a 1 percent goal overall.

And, of course, it's important to have goals not only for peak demand but for energy sales which are an important economic issue for affordability, an environmental issue here in the region, and obviously a global issue when it comes to carbon management nationwide and worldwide. We think this goal of 1 percent annual energy savings is challenging, but it's also achievable and, in effect, it's the minimum goal that will make sure that TVA remains in the leadership position that you aspire to in the region and nationally.

A number of states and utilities already have goals in this neighborhood of about 1 percent of sales each year. The proposed Federal legislation, as you may know, had

13:22:30 1 targeted the same level for a national energy
13:22:32 2 efficiency resource standard. And the SEEA
13:22:36 3 Board that I mentioned earlier is proposing a
13:22:38 4 similar goal to help the region as a whole
13:22:40 5 offset about half of its projected growth, in
13:22:44 6 this case both for gas and electricity through
13:22:46 7 energy efficiency and conservation.
13:22:48 8 There are a number of programs that are
13:22:50 9 described briefly on TVA's website and, of
13:22:52 10 course, your customers and your distribution
13:22:54 11 utilities and the Board and staff are very
13:22:56 12 familiar with. Rather than commenting on those,
13:22:58 13 I would simply note that these are, I think,
13:23:00 14 familiar and well-tested programs which I'm sure
13:23:04 15 will continue to be improved on and expanded
13:23:06 16 over time. We also urge TVA to look at
13:23:08 17 experience not just around the region but around
13:23:10 18 the country with utility programs and the kind
13:23:14 19 of analysis that many are conducting. And I
13:23:16 20 have several references to draw to your
13:23:18 21 attention in my written comments.
13:23:20 22 I would like to highlight just a few
13:23:22 23 areas that TVA might consider as you move
13:23:24 24 forward and design new and expanded programs to
13:23:26 25 reach these goals. First -- and, John, as you

13:23:28 1 mentioned -- we agree that new construction,
13:23:32 2 both residential and commercial, is a primary
13:23:34 3 contributor to load growth and a critical target
13:23:38 4 for energy efficiency and demand management.
13:23:40 5 Every new building put in place today we will be
13:23:42 6 living with, the people in this region and, in
13:23:44 7 fact, the people in this country for decades to
13:23:46 8 come. It's important not to have lost
13:23:48 9 opportunities with that capital investment but
13:23:50 10 to treat every new building as an opportunity to
13:23:54 11 optimize energy efficiency, which we know is
13:23:58 12 much cheaper to do at time of construction than
13:24:00 13 afterwards.
13:24:02 14 So Joe has already -- sorry, excuse me.
13:24:02 15 John has already mentioned several of the
13:24:04 16 opportunities starting with strong building
13:24:06 17 codes and with a role for TVA and your
13:24:08 18 distribution utilities to act as advocates for
13:24:12 19 adoption and strong compliance programs
13:24:14 20 throughout the region. There should also be a
13:24:16 21 seamless transition between building codes,
13:24:18 22 building energy codes, and beyond code programs.
13:24:22 23 And here are the Energy Star homes program that
13:24:24 24 John mentioned to you earlier, and that we know
13:24:26 25 are widespread around the region, still have a

13:24:30 1 long ways to go. I think TVA and the utilities
13:24:32 2 ought to set some concrete goals for achieving
13:24:34 3 market penetration that is significant for new
13:24:38 4 homes and, in fact, new commercial buildings for
13:24:40 5 beyond code programs.
13:24:42 6 Given the pressures of managing peak
13:24:44 7 demand, it's also important to tailor these
13:24:46 8 programs so that they address the sources of
13:24:48 9 peak demand. Peak air conditioning is an
13:24:52 10 example. It's far more effective and efficient
13:24:54 11 to design a house from the ground up with good
13:24:56 12 ducts, good windows, good insulation, a light-
13:25:00 13 colored roof and so forth so that it can reduce
13:25:02 14 its cooling load and downsize an air conditioner
13:25:06 15 from the get-go so that you don't have the
13:25:08 16 problem after the house is built with an over-
13:25:12 17 sized air conditioner, to try to control it with
13:25:12 18 a cycling switch. Much better to make that --
13:25:14 19 those savings permanent through designing a low
13:25:18 20 peak and energy efficient new home. Similarly,
13:25:20 21 for commercial buildings there are a number of
13:25:22 22 guidelines, Ashrae's guidelines, advanced
13:25:28 23 guidelines, the new Ashrae Standard 189 for
13:25:28 24 green buildings, the New Building Institute's
13:25:32 25 guidelines, and probably some regional

13:25:32 1 counterparts, all of which can provide very
13:25:36 2 positive direction.
13:25:36 3 In the case of existing facilities,
13:25:38 4 homes, buildings, industry, it's important to
13:25:42 5 look at not just the classic approach of
13:25:44 6 auditing and retrofitting, which is important,
13:25:46 7 but also to look at the energy related
13:25:50 8 investments that take place for non-energy
13:25:52 9 reasons. Every time a piece of equipment is
13:25:54 10 replaced or added, whether it's an air
13:25:58 11 conditioner, a home appliance or an industrial
13:26:00 12 motor, that's an opportunity for upgrading
13:26:02 13 energy efficiency and we urge you to look at
13:26:06 14 that and try to put together the combination of
13:26:08 15 programs and strategies working with retail
13:26:10 16 partners, working with programs like Energy
13:26:12 17 Star, that can make every change an upgrade for
13:26:16 18 energy efficiency.
13:26:18 19 Similarly, although TVA has already
13:26:22 20 done a lot, there is a lot more to do in
13:26:24 21 leadership by example. TVA as a Federal agency
13:26:28 22 is already subject to a number of Federal
13:26:30 23 requirements by statute. Your new buildings are
13:26:34 24 required now to be 30 percent more efficient
13:26:36 25 than the prevailing building code and your

existing facilities are also called on by Congress to save 3 percent of energy per year. This is a very important challenge and I know TVA is up to it, but TVA can also work with states and local government agencies throughout the region, throughout the Valley to help them adopt similar programs and policies and provide market leadership in their facilities, in their new construction, and in their purchasing practices, again, buying Energy Star and other energy efficiency products and creating a broad, regional market for energy efficiency.

Let me finally point out that energy efficiency is not just a matter of hardware. It's also a matter of how we operate our buildings and what kind of a human capital and institutional infrastructure we create to help support and drive energy efficiency in the future. And so it's important to invest not just in the energy saving hardware but in good practices, ranging from building commissioning to testing of ducts and building shells for air tightness and, in particular, to educate the next generation of consumers, something that we at the Alliance have been working on for many

13:27:40 1 years through our green schools and green
13:27:42 2 campuses program and that we hope to help
13:27:44 3 collaborate with you and your utilities and
13:27:46 4 others in the region in the future.
13:27:48 5 And with that, let me refer you to my
13:27:50 6 written comments and thank you for your
13:27:52 7 attention.
13:27:54 8 MR. FRANCIS: Thank you, Mr. Harris,
13:27:56 9 Ms. McNamara will be our next speaker.
13:27:58 10 Ms. McNamara.
13:28:00 11 MS. MCNAMARA: Thank you. Thank you
13:28:00 12 for the opportunity to provide comment on TVA's
13:28:04 13 future direction with energy efficiency
13:28:08 14 programming. Energy efficiency is one of the
13:28:10 15 most cost effective ways to address a host of
13:28:12 16 energy system needs. It can lower energy bills,
13:28:16 17 reduce demand for fossil fuels, help stabilize
13:28:18 18 energy prices, and help reduce air pollution and
13:28:22 19 greenhouse gases. So I commend you for
13:28:24 20 establishing a greater commitment to energy
13:28:28 21 efficiency and I'm pleased to be here to
13:28:30 22 represent the U. S. Environmental Protection
13:28:32 23 Agency and share some of our experiences and
13:28:34 24 outlooks that we have developed through our
13:28:36 25 partnership efforts with many organizations

across the country, through Energy Star, programs with state and local partnerships, and the National Action Plan for Energy Efficiency.

I understand that as a first step in TVA's commitment, you've commissioned a study to better understand the potential for energy efficiency in the region. This is an important starting point for identifying the economically available, technically feasible, but as yet untapped energy efficiency opportunities in the Tennessee Valley and it's an important step in embracing the full energy efficiency potential in the area.

Similarly important is to explore policies that are necessary to help energy efficiency be used as an energy resource on a level playing field with other resource options. While efficiency is cost effective and reliable, it cannot be deployed instantaneously. It does take ramp-up time and a long-term commitment. The good news is there's been a tremendous amount of learning in the utility sector over the past five to ten years in terms of how to effectively deliver energy efficiency to market. So I'm going to focus the majority of my

comments today on sharing key best practices related to program design and delivery and the related policy areas that need to be explored as part of pursuing all cost effective energy efficiency.

Many of these key lessons have been captured by the National Action Plan for Energy efficiency. A private public initiative which was begun in the fall of 2005 designed to create a sustainable, aggressive national commitment to energy efficiency through the collaborative efforts of gas and electric utilities, regulators and other partner organizations.

Key lessons from the action plan report, which is thick and downloadable from our website, related to efficiency program best practices are don't reinvent the wheel, don't operate in a vacuum, solicit stay colder input in program design and delivery, work with, not in competition with, the market, the builders, the distributors, the manufacturers, the retailers that normally deliver energy using products and related services to customers and look at your efficiency programs as a portfolio of investments, balancing reliability and risk,

13:30:52 1 when will investments mature, how long will
13:30:56 2 savings last, and how to insure a stream of
13:30:58 3 savings over the longer term.
13:31:00 4 Leveraging the national Energy Star
13:31:02 5 program is another recommendation of the action
13:31:04 6 plan report that captures all of these best
13:31:06 7 practices. And so I thank John and Jeff for
13:31:10 8 their endorsement of Energy Star. It is one of
13:31:12 9 the most effective platforms for realizing more
13:31:16 10 efficient products, buildings, and homes. It
13:31:18 11 was begun in the early nineties as a voluntary
13:31:20 12 public partnership -- public private partnership
13:31:24 13 which is designed to reduce energy use and
13:31:26 14 related greenhouse gas emissions.
13:31:28 15 The program has a vast network of more
13:31:30 16 than 12,000 partners including 40 states, 3,000
13:31:34 17 private businesses, 1,000 retailers, 5,000
13:31:38 18 builders, and hundreds of energy service
13:31:40 19 professionals and about 550 utilities and other
13:31:44 20 energy efficiency program sponsors throughout
13:31:46 21 the national. All of these partners leverage
13:31:48 22 Energy Star to improve energy efficiency in a
13:31:52 23 way that helps their bottom line and enhances
13:31:54 24 their business image. And bottom line for our
13:31:58 25 utility partners is that leveraging Energy Star

reduces the time and expense of getting energy efficiency programs up and running and it delivers results.

So I would like to encourage TVA and the utilities it serves to leverage Energy Star to its fullest potential moving forward. I'm going to highlight some of the key benefits of embracing Energy Star as your local platform for energy efficiency.

First of all, Energy Star offers consumers a simple, easy to understand indicator of energy efficiency. Program specifications are devised in partnership with all interested stakeholders, they are designed to be cost effective to the end users and they offer the same or better performance than the typical alternative.

Today more than 70 percent of U.S. households recognize the Energy Star label and understand its meaning. Last year more than 35 percent of households knowingly purchased at least one Energy Star qualifying product and many of them found -- the majority of them, over 70 percent, found that the label was influential in their purchasing decision. What's more,

13:33:06 1 Energy Star is well poised for continued growth
13:33:08 2 and influence. 80 percent of purchasing
13:33:10 3 households say they're likely to recommend
13:33:12 4 Energy Star to others and this is a key
13:33:14 5 indicator of consumer loyalty.
13:33:16 6 Secondly, the Energy Star portfolio of
13:33:22 7 strategic investments is well aligned with
13:33:22 8 customer and utility needs. Our strategic
13:33:26 9 investments include defining, educating and
13:33:28 10 promoting cost effective energy and
13:33:30 11 environmental opportunities through the single
13:33:32 12 designation of Energy Star. Our outreach
13:33:34 13 includes national and product specific
13:33:38 14 promotions such as the widely successful Energy
13:33:40 15 Star Change the World Campaign which engages
13:33:44 16 manufacturers, retailers, utilities, and local
13:33:46 17 communities in a call to save energy and the
13:33:50 18 environment by taking simple actions at home.
13:33:52 19 All of our campaign activities are
13:33:54 20 designed to provide complimentary actions,
13:33:58 21 tools, and resources to our partners, including
13:34:00 22 high-quality marketing materials, customizable
13:34:02 23 templates, training resources for sales
13:34:06 24 associates, and consumer tools such of our
13:34:08 25 special deals finder, store locator, and

qualifying product lists. In the residential arena, Energy Star offers product specifications for a wide array of home products, everything from large appliances to televisions to the battery chargers that are connected to our power tools.

Energy Star homes not only offer superior energy efficiency to consumers, they are also more durable and deliver better protection against cold, heat, drafts, moisture, pests, pollution, and noise. In the hard-to-crack existing home improvement market, Energy Star has designed in conjunction with some of our leading utility sector partners a whole house solutions program called Home Performance with Energy Star in which specially trained contractors not only uncover energy health and comfort problems, but they also provide an easy path for homeowners to make the improvements.

In the commercial and industrial arena where energy performance can reasonably be delivered from the product alone, we do offer the Energy Star for labeled products and commercial food services and office products are

two examples here. We're also working to tackle the significant load growth associated with large data centers and servers. However, the crux of our strategy is to promote whole building, whole facility improvement.

Over the past 25 years, the efficiency of building technologies and materials has improved by more than 30 percent, but you don't see nearly this level of improvement when you look at overall building energy consumption and that's because building technologies and controls are often poorly integrated into the building system. So to promote and improve whole building performance, not only do we offer the Energy Star label to top performing buildings, we also offer a path for improving buildings by 10, 20, or 30 percent or more through whole building assessment and strategic energy management.

Most of us can roughly tell you the miles per gallon that our cars use, but even many facility engineers cannot tell you whether their building is efficient. EPA has worked in collaboration with industry and others such as Oak Ridge National Laboratory to development

easy to use benchmarking tools which essentially help communicate to everyone from the CEO to the building engineer how their facility performs relative to others using a simple 1 to 100 scale. Leading utilities are beginning to offer their customers automated benchmarking services as the entry point for the retro- commissioning and custom incentive programs.

Finally, Energy Star can help you get connected and leverage existing market channels. As I mentioned, our vast network of partners can be leveraged both to understand lessons learned and program delivery and to develop code promotions that influence consumers at the time of sale, whether leasing a building, buying a new home or purchasing a new light fixture. And we also offer large group opportunities for networking and best practice exchange through our partner meetings, such as the one that's upcoming next week in Utah related to Energy Star homes.

Energy Star has been a very successful platform to date. Americans, with the help of Energy Star, saved enough energy in 2007 alone to avoid greenhouse gas emissions equivalent to

those from 27 million vehicles, all while saving 16 billion on their utility bills. These savings are on track to double in the next ten years.

I'd also like to encourage you to use the implementation goals established under the National Action Plan for Energy Efficiency to help guide you in the ramp-up of your programs and the policies that need to be explored as part of pursuing all cost effective energy efficiency. A ten goal structure has been through the action plan that addresses policy areas such as integrating energy efficiency into resource planning, aligning utility incentives equally for efficiency and supply side resources, aligning customer incentives with energy efficiency investments, establishing effective energy efficiency delivery mechanisms, and adopting robust evaluation, measurement and verification of energy savings.

So to conclude I'd like to encourage you to more fully leverage the extensive market power and resources of the Energy Star program and to continue to reach out both within your region and externally to inform program design

13:38:34 1 and delivery. So thank you.
13:38:36 2 MR. FRANCIS: Thank you, Ms. McNamara.
13:38:40 3 Commissioner Sloan will be the final panelist to
13:38:40 4 offer comment on the policy panel. Commissioner
13:38:44 5 Sloan.
13:38:44 6 MR. SLOAN: Thank you, Chairman Sansom,
13:38:46 7 and thank you, participating Board members and
13:38:50 8 Tom Kilgore, president, for inviting me to
13:38:54 9 participate in this conversation. I very much
13:38:56 10 appreciate it.
13:38:56 11 I am, as you said, Deputy Commissioner
13:39:00 12 of Department of Environment and Conservation, a
13:39:02 13 position that I assumed three years ago. And
13:39:08 14 when I took the position, there were two of my
13:39:14 15 most welcomed surprises was the scope and
13:39:18 16 competency of the staff, the professional staff
13:39:22 17 that awaited me at TDEC. And to you new Board
13:39:26 18 members, I'm delighted that you have had and
13:39:30 19 will have the same experience. You will
13:39:34 20 discover that the staff, the management at TVA
13:39:38 21 is among the best, and in the issue at hand and
13:39:42 22 the conversations that we in the State have had
13:39:46 23 with Tom Breeden and Bridget Ellis, Joe Hoagland
13:39:52 24 and Anda Ray, you have assembled a terrific team
13:39:58 25 to take on this challenge and I commend you for

that.

I also commend you for the approach you're taking to the development of this element of your strategic policy. I think the transparency, the public participation is critical to the process and I commend you for doing that. I think in the past when you developed the strategic plan itself, you conducted -- you chose to conduct nine town meetings across the region and I think in some respects we're here today because of your commitment to do that and response to the input that you received. And, again, I commend you for that.

And, finally, on the commendation list, we in the Department have a core value to solve problems using a scientific and factual based approach that respects diverse opinions and is open to input and that's precisely what this process has done. And so I think this is a very important initial step in a fast track to develop the policies that you're doing.

On the subject of energy efficiency, including conservation as well as peak shaving, I would like to speak generally to the approach

that you take going forward and speak in more general terms.

Director Bottorff, your reference to efficiency as being the greenest of the components, I very much appreciate. As the head of Department of Environment and Conservations, Bureau of Environment, I will say it is definitely the lightest footprint and it is the one that we need to be the boldest in trying to expand. Currently as a piece of the pie, it's a very small piece of the pie and the question is how do we make it -- and I use the word "we" purposefully. How do we make that piece of the pie large enough to satisfy our own appetites, the appetites of the expectation of our 8 and a half million customers within the Valley and that's a huge challenge.

And in my view it requires, number one, partnership and it requires partners whose strategies are aligned and who are committed to purposeful work toward significant and measurable results. Without those elements, I think it's going to be very difficult to take a sliver and make it into a significant piece of the pie.

13:42:56 1 In terms of partners, I'm certainly
13:42:58 2 here today to tell you that the Tennessee -- the
13:43:00 3 State of Tennessee is a willing, enthusiastic
13:43:04 4 partner in developing this element of the
13:43:06 5 strategic plan. And here with me today is Will
13:43:12 6 Pinkston, senior advisor to the governor. And
13:43:18 7 let me say this. Recently, or last week, the
13:43:22 8 governor participated in the National Governors'
13:43:24 9 Association meeting in Washington and returned
13:43:28 10 from a meeting where energy was the theme. And
13:43:32 11 in speaking to the Tennessee Chamber of Commerce
13:43:36 12 and Industry last week, he said, you know, there
13:43:38 13 were 50 opinions at the table but all agreed
13:43:42 14 that energy was a preeminent issue, but none
13:43:46 15 could agree on universal strategies.
13:43:50 16 And his conclusion was it was time to
13:43:52 17 come back to Tennessee, roll up our sleeves, and
13:43:56 18 get to work on this issue. And at that time the
13:44:00 19 governor announced that he will be signing an
13:44:02 20 executive order which would direct us and
13:44:06 21 assemble a group to develop a comprehensive
13:44:10 22 energy policy for the State of Tennessee.
13:44:18 23 The alignment -- before speaking to the
13:44:22 24 alignment, let me speak to the other partners.
13:44:26 25 Efficiency -- energy efficiency is not something

13:44:28 1 that TVA can do alone and we fully well
13:44:32 2 recognize that. It will not happen without a
13:44:34 3 significant broad base of partners. It will not
13:44:38 4 happen without the partnership of the Tennessee
13:44:38 5 Valley Public Powers Association, the 158
13:44:44 6 distributors that you work with, it won't happen
13:44:46 7 without the Tennessee Valley Industrial Council
13:44:48 8 with which you work closely, and it won't happen
13:44:52 9 with a number of other partners.
13:44:54 10 But fortunately, those partners are
13:44:56 11 here and participating in this gathering. And I
13:45:00 12 think that together these partners, if we come
13:45:06 13 together and we align our strategies, are
13:45:12 14 critically important -- important to the
13:45:12 15 process, to look at all of the strategies that
13:45:16 16 exist. We've heard of so many good programs
13:45:20 17 among the three panelists and over the next --
13:45:22 18 the next panels and tomorrow we'll hear of an
13:45:28 19 entire menu of great strategies, but we're going
13:45:32 20 to have to get an arm around it and we're going
13:45:34 21 to have to have all our partners, we, you, the
13:45:38 22 distributors, we're all going to have to come
13:45:40 23 together and we're going to have to develop a
13:45:42 24 very clear strategy that's going to get us
13:45:46 25 leverage, size, scale, so that we look back in

five years and we've not only got the 1200, we may exceed that 1200, but we look back and say real progress was made and this is a sustainable, reliable component of what we, TVA, are missioned to do.

The purposeful work and significant and measurable results, it's all a matter of scale. And as I -- this morning I had the good fortune of being up in Oak Ridge. Every time I go to Oak Ridge, I just am bowled over. And I was reminded that TVA is a critical component of the progress that has been made at Oak Ridge. Without the delivery of the power to Oak Ridge, Oak Ridge would not be the world class, preeminent research center that it is.

So when we look to -- as we look to TVA's core components of its mission, the delivery of reliable, sustainable power, affordable, reliable, sustainable power, economic development and stewardship, I think historically -- the historical origins of economic development and stewardship served a huge purpose when -- at its origin. And TVA, when it came -- was created, came to the Valley and lifted an impoverished -- and impoverished

13:47:34 1 area and harnessed the power to do that, it
13:47:38 2 fulfilled a world class mission that deserved
13:47:44 3 the applause of the world. We are at a similar
13:47:48 4 junction now and I think we have an opportunity
13:47:50 5 to put -- for TVA to be in the same preeminent
13:47:56 6 position as it was when it was -- when it was
13:48:00 7 started. When I think of Norris Dam being built
13:48:04 8 in 18 months and the length of time it would
13:48:06 9 take for it to be built today, it's staggering.
13:48:10 10 It's staggering the task before us to really
13:48:14 11 really make a difference.
13:48:22 12 Several things are very encouraging to
13:48:24 13 me. One is that probably over half of the built
13:48:28 14 environment that we're going to be in in another
13:48:32 15 20 years hasn't been built yet, so we have a
13:48:36 16 huge opportunity to impact our future.
13:48:38 17 Secondly, I think that as you look at all of
13:48:42 18 these programs, they're all so effective. But
13:48:46 19 if we could -- but it's going to take us to pull
13:48:50 20 them together and to commit major resources into
13:48:54 21 their deployment. I think I will close there.
13:49:12 22 MR. FRANCIS: Thank you, Commissioner
13:49:14 23 Sloan. At this time, the Board may ask
13:49:16 24 questions for the panelists.
13:49:24 25 MR. SANSOM: John, I think Paul used

13:49:28 1 the term energy shaving or peak shaving. Right,
13:49:34 2 Paul? I think that's the term, but whatever.
13:49:34 3 In your programs in Kentucky, one thing we've
13:49:38 4 learned is there's -- and I'm not sure everybody
13:49:42 5 understands -- the use of energy and the peak
13:49:44 6 problem we have, which is our expensive
13:49:48 7 production, if you will, what are y'all doing to
13:49:52 8 separate this energy use from peak demand in
13:49:56 9 Kentucky?
13:49:58 10 MR. DAVIES: The regulated utilities
13:50:00 11 also have demand response, peak shaving
13:50:04 12 programs. East Kentucky Power, LG&E, UK. That
13:50:08 13 can be from the traditional plans where you call
13:50:12 14 out and have people on interruptible schedules
13:50:16 15 come off. A program that also comes to mind is
13:50:24 16 LG&E and KU have in the summer their -- in the
13:50:24 17 summer peaker and they'll have the air
13:50:26 18 conditioning programs that will cycle off and
13:50:30 19 on. Probably the cycling on and off of air
13:50:32 20 conditioners has been probably the greatest peak
13:50:34 21 shaver for LG&E and KU.
13:50:42 22 MR. BOTTORFF: And that's both
13:50:44 23 residential and commercial?
13:50:46 24 MR. DAVIES: Principally residential.
25 MR. BOTTORFF: Principally residential?

MR. DAVIES: Uh-huh.

MR. KILGORE: Have you done any time of use pricing and studied that?

MR. DAVIES: LG&E and Louisville has a time of reduce program, pilot program ongoing right now and we'll get those results probably in six to eight months.

MR. BOTTORFF: Now, John and Jeffrey and Maureen, had you compared your comments? Because all three of you were big proponents of Energy Star. So was that something you had agreed upon before you got here or is that just this --

MS. MCNAMARA: Well, I did mention we have a lot of partners, including 40 states, including Kentucky. And as John mentioned, you know, they've gotten a lot of notoriety by becoming an Energy Star award winner. You know, I've known Jeff for a long time. I won't lie. But I think it is just a common platform that many folks can rally around. It's just been very successful at harnessing market forces. So, you know, there's a reason that the National Action Plan for Energy Efficiency and my colleagues up here also agree and have rallied

around Energy Star as a platform.

MR. BOTTORFF: But if you came independently and all three of you brought that up, it's definitely something we need to get on, I mean. Now, but if you went out and if you had a cup of coffee this morning and put that in your remarks --

MS. MCNAMARA: I had to get my comments reviewed before I came this morning.

MR. BOTTORFF: Oh. I see.

MR. DAVIES: I also sit on the -- I'm a chair for the Energy Star task force for the NASEO group which is the state association for energy directors, and right now we have participation by over 38 states with Energy Star. And I think what states find with Energy Star is you can bring so many partners in and the threshold to come into the program is very low. You basically sign up to the program that you won't destroy the logo and then you have a whole portfolio of opportunities to participate in.

And with our home builders now, they're very much excited about the opportunities that they can show to customers of why you have a

13:52:56 1 third party verification with your home so
13:53:00 2 you're getting a quality home. So it's an easy
13:53:02 3 program to embrace.
13:53:08 4 MR. SLOAN: Can I add to? One of the
13:53:10 5 -- when I mentioned alignment, one of the
13:53:12 6 focuses or one of the subjects that I think TVA
13:53:16 7 will need to perhaps revisit and that's the
13:53:22 8 Energy Right program and the Energy Star
13:53:24 9 program. I mean I think when we -- if we are
13:53:30 10 going to align the mission, then the language
13:53:32 11 needs to be very very very clear and I think
13:53:36 12 that recommends taking a look at that, as much
13:53:38 13 of an investment as you have in that, but it's
13:53:42 14 something that needs to be reflected on.
13:53:50 15 MR. THRAILKILL: Mr. Harris, I had a
13:53:50 16 question for you. You talked about investments
13:53:54 17 in new and existing homes and I have trouble
13:53:56 18 with sequencing that's an issue. Most home-
13:54:00 19 owners are faced with a lot of different types
13:54:04 20 of ways they can spend money. Yet if you buy a
13:54:06 21 new home, for example, you're probably the first
13:54:08 22 of many persons that will own that home over its
13:54:12 23 life. How do you get them to bite the bullet to
13:54:16 24 spend that extra money when they're typically
13:54:18 25 looking at a lot of opportunities, strictly from

13:54:22 1 a financial point of view? To get their money
13:54:24 2 back in two, three, five years, yet this -- most
13:54:26 3 of the efficiency numbers I've looked at don't
13:54:28 4 pay back that quickly. How do you get them to
13:54:32 5 do that knowing that the primary beneficiaries
13:54:36 6 of their investment will be subsequent home-
13:54:38 7 owners.
13:54:40 8 MR. DAVIES: Well, I think that's a
13:54:42 9 very good question, Mr. Thrailkill. And let me
13:54:42 10 -- I think that Maureen may want to comment from
13:54:46 11 the perspective of Energy Star also which has
13:54:48 12 developed, I think, a number of tools for
13:54:48 13 helping builders and buyers understand the
13:54:52 14 economic value of Energy Star homes. Let me
13:54:56 15 answer on a couple of main points.
13:54:58 16 One is that that new home and any added
13:55:02 17 cost to that home is, of course, not paid for in
13:55:04 18 one year or three to five years. It's typically
13:55:08 19 paid over a 30-year mortgage. And so the real
13:55:10 20 question is whether the cash flow is positive to
13:55:12 21 the homeowner, whether the savings each month
13:55:16 22 are at least as great -- and, in fact, they are
13:55:18 23 in a typical Energy Star home -- as the added
13:55:22 24 cost of the mortgage.
13:55:22 25 There's a further question on resale

and I think there does need to be a little more work at understanding what the market does to accept Energy Star homes. But I think as the program becomes even more widespread and better known, I expect to see a demand for Energy Star in the resale market, as well. In other words, is this house a quality house? We know that people don't always make their decision on economics, that, you know, when you buy your granite countertops these days or your extra walk-in closet, there's comfort and convenience and there's comfort and convenience that comes with energy efficiency, as well.

Better windows in the house, a more efficient air conditioning system that doesn't cycle off and on have advantages of thermal comfort, they have advantages of reducing the humidity and load grow -- and mold growth that happens in a new house. So there's a lot of selling points that I think builders around the country are starting to use that go well beyond economics and I think in the more successful programs you see that these themes are starting to emerge and people really respond to them.

MR. BOTTORFF: Building codes are done

13:56:30 1 at a local level; right? And so how do you
13:56:32 2 create this -- in Kentucky, how did you create
13:56:32 3 the adoption of the energy efficient codes
13:56:36 4 across all these different local governments?
13:56:40 5 MR. DAVIES: We adopted at the state
13:56:44 6 level and then it's enforced at the local level.
13:56:48 7 And the way we edu -- you know, we're just out
13:56:50 8 educating. We've had numerous workshops in
13:56:52 9 educating builders, code officials in telling
13:56:56 10 them the difference in why they ought to care
13:56:58 11 about codes. We're now working with our
13:57:00 12 utilities to bring them more into the fold to
13:57:02 13 understanding the impact that codes have on
13:57:06 14 their peak demand, on their energy use. Because
13:57:08 15 up until two or three years ago, they really
13:57:12 16 weren't involved with the code process and we
13:57:14 17 see that they can gain so much from the
13:57:16 18 efficiency side of things by being involved,
13:57:18 19 knowing what goes on. Because it used to be
13:57:20 20 that codes were decided by a group of home
13:57:24 21 builders. It was a pretty tight group and there
13:57:26 22 wasn't a lot of transparency. And now with
13:57:28 23 those decisions, it amplifies throughout to the
13:57:32 24 grid. So just really a lot of education and
13:57:36 25 awareness.

MR. DEPRIEST: Can I have one quick question?

MR. SANSOM: Sure.

MR. DEPRIEST: What is driving your industrial consumption 400 percent higher than the national average? Is that some aberration?

MR. DAVIES: Well, we've got a lot of aluminum plants, automobile manufacturers. I mean we've brought in industry that needed low cost energy and we're proud to have it, but we've got to keep the prices -- we've got to keep them competitive. So, you know, I think you'll find that with any state that has low cost energy is you have energy intensive industries. Tennessee has a lot of energy intensive industry.

MR. SANSOM: I'm going to follow that with, Maureen, do y'all track -- sometimes we hear we're our worst enemy because we have lower priced power, people use it more. Do you have a way of tracking where your programs are working, which states are good, which states don't -- this Energy Star program? Do you have a way of tracking those states that are better at it?

13:58:42 1 MS. MCNAMARA: Well, I would say that
13:58:44 2 where we have strong long-term commitment from
13:58:46 3 utilities in terms of advancing energy
13:58:48 4 efficiency through local programming, at least
13:58:52 5 at the understanding and awareness, loyalty to
13:58:58 6 Energy Star, there does seem to be, you know,
13:59:00 7 typically at least 10 percentage higher points.
13:59:04 8 You know, the reality is that this efficiency
13:59:08 9 programming and the investments that were made
13:59:10 10 in efficiency programming coincided with
13:59:14 11 restructuring legislation which kind of came to
13:59:20 12 a halt a number of years ago. But when states
13:59:22 13 were considering restructuring, this was
13:59:24 14 definitely an issue that came up, how are we
13:59:28 15 going to continue to deliver efficiency.
13:59:30 16 So if you look at the Pacific
13:59:32 17 Northwest, California, the Northeast, also areas
13:59:36 18 that have, you know, come upon the same issues
13:59:38 19 you're facing in terms of, you know, the need to
13:59:40 20 meet, you know, no excess capacity, the need to
13:59:44 21 reduce growth and having energy efficiency be
13:59:48 22 the best solution for them, I think that's where
13:59:50 23 you see the greatest uptake of our portfolio.
13:59:56 24 But we really have gone very national and
13:59:58 25 perhaps partially, you know, because of their

14:00:00 1 investment and co-investment with us in
14:00:02 2 advancing energy efficiency through Energy Star.
14:00:06 3 You know, so there are parts of the
14:00:08 4 country that have lagged a little bit behind in
14:00:12 5 this arena and I think they're all coming on
14:00:14 6 board as quickly as possible now. But, you
14:00:18 7 know, you can find Energy Star in, you know,
14:00:20 8 Walmarts, Lowe's, Home Depot, you know, products
14:00:24 9 well marked, well labeled across the U. S.
14:00:26 10 because, you know, consumers want them.
14:00:30 11 MR. FRANCIS: We have time for one more
14:00:32 12 question.
13 MR. SANSOM: One more question?
14:00:36 14 MR. SLOAN: If there's not a question,
14:00:38 15 I'd like to go back to the residential and to
14:00:46 16 Mr. Thrailkill's question in part. And that is,
14:00:50 17 one, at the state level the residential and
14:00:52 18 commercial codes are something that should be
14:00:58 19 considered, something that we will be, I'm sure,
14:01:02 20 considering when we develop the statewide
14:01:06 21 policy. There is, in this session, a bill that
14:01:12 22 would establish residential building code but
14:01:16 23 not the commercial is my understanding.
14:01:18 24 It's important as we look at that
14:01:20 25 issue, though, to -- as with all of these issues

14:01:24 1 is to -- is to seek con -- is to build consensus
14:01:28 2 with home builders, with the development
14:01:30 3 community as to the wisdom of moving forward
14:01:36 4 here and how we do it. But residential in
14:01:38 5 building codes are essential, as is
14:01:44 6 consideration of some notice on the front end,
14:01:48 7 some education of the home builder.
14:01:56 8 I can buy a candy bar and learn
14:02:00 9 everything that's in it. I can buy anything at
14:02:02 10 the grocery store and know everything that's in
14:02:04 11 it. I can buy a $30,000 square foot house and
14:02:06 12 have no idea of what the energy efficiency of
14:02:10 13 that house is. I think that's something that we
14:02:12 14 at the state level need to take a look at,
14:02:14 15 whether or not the HERS rating or the rating
14:02:18 16 system for homes should be on the label when I
14:02:22 17 buy it so I can make a conscious decision of
14:02:26 18 what I'm doing. These -- in the end, energy
14:02:30 19 efficiency is something that is more in the
14:02:36 20 domain of the 8 and a half million customers
14:02:38 21 than it is in the Board room of TVA. And so I
14:02:44 22 think that's our challenge, is to -- how to make
14:02:48 23 that paradigm shift and make it reliable,
14:02:52 24 sustainable, so that you can plan what your
14:02:56 25 generation needs are, but we've maximized the

efficiency.

MR. BOTTORFF: Well, thank you, Mr. Sloan, Ms. McNamara, Mr. Harris, and Mr. Davies.

MR. FRANCIS: Thank you very much.

MR. BOTTORFF: Gil, we reconvene --

MR. FRANCIS: Yes, sir.

MR. BOTTORFF: -- at 2:05? Is that right?

MR. FRANCIS: Yes. We're going to take the time to change out the panels. Again, we thank all the panel members for their comments. We'll switch out and reconvene at 2:05 o'clock. Thank you.

(A break was taken.)

MR. FRANCIS: Our next panel is composed of members of the environmental community and agencies involved in environmental regulation. Members of this panel from left to right, Jeff Barrie, Kilowatt Ours, a film producer and project director; Thomas Baugh, Energy and Climate Change Coordinator at the United States Environmental Protection Agency; Don Safer, Chairman for the Tennessee Environmental Council; and Dr. Stephen Smith,

14:09:52 1 Executive Director for the Southern Alliance for
14:09:54 2 Clean Energy. Mr. Barrie, would you begin,
14:09:58 3 please?
14:09:58 4 MR. BARRIE: Thank you. Good
14:10:00 5 afternoon, gentlemen, chairmen, Chairman Sansom
14:10:04 6 and Bottorff, President Kilgore. It's an honor
14:10:06 7 to be here. Thank you for having me to be part
14:10:08 8 of this panel.
14:10:10 9 Being a film maker, I had to bring my
14:10:12 10 props, so I have a few -- I have a little show
14:10:14 11 and tell as part of my talk here. I am the
14:10:20 12 creator of the documentary film Kilowatt Ours.
14:10:20 13 That's hours without the H. It might be a
14:10:24 14 little bit confusing. But it's our electricity
14:10:28 15 and that's the name of the film. I'm also the
14:10:28 16 founder and director of Kilowatt Ours, the
14:10:30 17 nonprofit initiative in Nashville, Tennessee.
14:10:32 18 We're a young organization. We've been around
14:10:34 19 since 2003 and we have several thousand
14:10:38 20 participants in our program throughout the
14:10:40 21 region and across the nation.
14:10:42 22 So I thank you again for this
14:10:44 23 opportunity to share a vision with y'all. And
14:10:48 24 it's a vision for TVA and for the economy and
14:10:52 25 the people of Tennessee and the Tennessee

14:10:54 1 Valley. Thank you for your leadership towards
14:10:58 2 energy conservation. I'm a big believer in
14:11:00 3 this. I have been since I was a kid.
14:11:02 4 And the theme of my talk is take a load
14:11:06 5 off. As you know the Tennessee Valley ranks
14:11:10 6 among the nation's top consumers of electricity.
14:11:14 7 Per capita residential usage in this region is
14:11:16 8 highest in the nation as is the usage of coal to
14:11:18 9 generate that electricity. I believe we can go
14:11:22 10 from leaders in consumption to leaders in
14:11:26 11 conservation rather quickly. And this target,
14:11:28 12 TVA's target of the 1200 megawatts of
14:11:32 13 conservation by 2013 is a wonderful step in this
14:11:32 14 direction and I look forward to being a part of
14:11:34 15 helping that plan come together.
14:11:36 16 You know, once this pilot period -- I
14:11:40 17 guess I would consider it sort of a pilot, it's
14:11:42 18 a very aggressive one and it is a big
14:11:44 19 experiment. And once it has resulted in its
14:11:46 20 success in 2013, then we can look at getting
14:11:50 21 more ambitious and perhaps meeting a much
14:11:52 22 greater portion of our demand growth for energy
14:11:54 23 efficiency and conservation.
14:11:56 24 One of the best indicators of success
14:11:58 25 in this whole grand endeavor is actual per

14:12:02 1 capita usage of energy and right now per home
14:12:04 2 it's high. When we see that leveling off or
14:12:10 3 even lowering over time, we know we've succeeded
14:12:12 4 and I know we can do that. It takes about 1
14:12:14 5 pound of coal in the Tennessee Valley to provide
14:12:16 6 a home with 1 kilowatt hour of electricity
14:12:20 7 today. The average home in Tennessee consumes
14:12:24 8 over 1300 kilowatt hours of electricity per
9 month.
14:12:28 10 Now, I'm going to talk about Tennessee
14:12:30 11 and, of course, this is pretty close to that
14:12:32 12 region wide in the Tennessee Valley. That's 7
14:12:36 13 and a half tons of coal per year for the average
14:12:38 14 home in Tennessee, in the state of Tennessee.
14:12:38 15 And the environmental side effects of this,
14:12:42 16 being the environmental panel, include
14:12:44 17 mountaintop removal coal mining, haze pollution
14:12:46 18 in the Smokies, global warming, respiratory
14:12:50 19 diseases in children and the elderly, mercury
14:12:54 20 contamination in our waters leading to
14:12:56 21 developmental problems in children, and these
14:12:58 22 are all a result of the coal energy cycle.
14:13:00 23 I want to talk about solutions. I'll
14:13:02 24 use my time here to offer several key
14:13:04 25 recommendations for TVA to consider in this

14:13:06 1 conservation plan. I'll start with my most
14:13:08 2 challenging notion, probably the most ambitious.
14:13:12 3 I propose that TVA adopt a policy or look at
14:13:16 4 adopting a policy that phases out the purchase
14:13:16 5 of coal from mountaintop removal operations in
14:13:18 6 the southern Appalachia and replacing that with
14:13:22 7 further -- replacing those BTUs with further
14:13:26 8 robust, efficiency conservation and green power
14:13:30 9 programs. And I'd like to offer to bring a
14:13:32 10 group of coal field residents to meet with you
14:13:34 11 and to hear their stories, as well, and why this
14:13:36 12 ought to be a priority.
14:13:38 13 Conserving 1 kilowatt hours saves 1
14:13:42 14 pound of coal which in turn keeps a pound and a
14:13:44 15 half of carbon dioxide out of the air. And
14:13:48 16 every megawatt hour we save prevents 8 pounds of
17 sulfur dioxide and 4 pounds of nitrogen oxides
18 and a small amount of mercury from going into
19 the atmosphere.
20 In short, conservation, as we've heard,
21 is the quickest, cheapest way to clean up the
14:14:02 22 environment and to meet future load growth. It
14:14:04 23 outperforms all other generation sources and
14:14:06 24 conservation ought to be TVA's highest priority.
14:14:10 25 I don't believe that nuclear power plants are a

solution because those resources ought to be more effectively -- or may be more effectively if invested in demand side programs.

So what does it take to save kilowatts? Our organization is most concerned with the millions of existing homes and buildings in this region, primarily the residential sector. We hear a lot about these, compact fluorescent light bulbs and we know that this bulb here can save -- well, this is actually a demo. It's a squeezable demo. It can save 500 pounds of coal over its lifetime compared to a comparable incandescent. Multiply that by 2.6 million households in Tennessee alone and that's a big impact and it's a good start.

Let's not forget to establish a network of bulb recycling centers across the Valley because these have a lot of substances in them, including mercury, that must be recycled, as well, so they do not enter the environment. So establishing a bulb recycling network is key, as well.

My next prop is mastic. Now, because -- we can move quickly beyond the lighting technologies. It's a low -- hanging fruit.

Well, mastic is the best compound for sealing duct work in homes. According to EPA, the average home leaks about 20 percent of all that heating and cooling air through leaking duct work. In the Tennessee Valley that ups to -- adds up to billions of kilowatts hours wasted annually. Those are huge environmental consequences from energy waste that benefits nobody.

The work force is also in place to seal those leaking ducts. You can -- name one town that doesn't have a cadre of HVAC service companies listed in their local yellow pages. And with some simple training on how to use this stuff to seal ducts, we could cut the waste in half or more from those leaking ducts. That's a hundred dollars a year of savings for the average home in the Valley, not to mention billions of pounds of coal saved region wide. A broad duct sealing effort ought to be included in this plan.

This is a job-creating program, a boost to the economy, in small towns and big cities alike in this region. There's a company in Nashville called Metrolight. I brought their

product here and this is a ballast. This company Metrolight produces energy -- smart energy efficient ballasts for HID, or high intensity discharge, lighting. This reduces, in other words, street lights and parking structure lights. This reduces the energy used by 65 percent in those lights and doubles the life expectancy of those bulbs. Now, how about putting these in every fixture in the Tennessee Valley, all those street lights out there. Enormous savings potential.

LP Corporation in Nashville -- its new headquarters is there, it's been there for years -- manufactures this radiant barrier technology. It's like aluminum foil, but it reflects most of the radiant heat from the sun, keeping homes cooler in the summer and warmer in the winter and it reduces heating and cooling costs by 17 percent. And these facts and statistics are all cited in my document, as well, at least the most recent version I've sent over to TVA.

There are all sorts of companies in the Valley that have the skills and the expertise to do this work. Home Energy Concepts in

14:17:26 1 McMinnville, Tennessee, for example, already has
14:17:26 2 a trained network of home energy raters
14:17:30 3 throughout this region. One of the -- once the
14:17:32 4 home has an energy rating, the work may be
14:17:34 5 financed by offering an energy improvement
14:17:38 6 mortgage every time a home is sold in the
14:17:40 7 Valley. TVA can partner with the realtors'
14:17:42 8 association to make this happen.
14:17:44 9 Georgia Power is piloting a program in
14:17:48 10 Savannah to train home inspectors to conduct
14:17:50 11 energy assessments at the point of sale and
14:17:54 12 offer efficiency improvements that can roll
14:17:56 13 those costs into the mortgage. So it's adding
14:17:58 14 just a tiny little almost incremental cost to
14:18:00 15 the mortgages that are paid for by those energy
14:18:04 16 savings over time on the monthly power bill.
14:18:06 17 Some other suggestions include improve the TVA
14:18:08 18 website to be an essential clearing house for
14:18:12 19 solutions, to find local contractors, products
14:18:14 20 and services and other resources for consumers.
14:18:18 21 My expertise is in educating the
14:18:20 22 public. How do we craft a message that
14:18:24 23 motivates consumers to care and to participant?
14:18:26 24 To me it's simple. We tell the truth. I'm a
14:18:28 25 big believer that when people are aware, they

14:18:30 1 make better choices. But these realtime price
14:18:38 2 -- time -- price of day -- I'm sorry -- time of
14:18:38 3 day pricing controls or monitors that could be
14:18:42 4 put in the house tied to a radio dispatcher that
14:18:44 5 comes from the electric meter can be put in the
14:18:48 6 kitchen or in a visible place in the home and
14:18:50 7 show the homeowner where -- how much energy
14:18:54 8 they're using as it goes throughout the day.
14:18:54 9 And in Seattle they did a program like this and
14:18:56 10 energy usage dropped 15 percent.
14:19:00 11 A research study by Virginia Tech has
14:19:00 12 shown that in simply showing people a television
14:19:02 13 show, not this one, but a television show about
14:19:06 14 energy conservation resulted in 17 percent
14:19:10 15 reduction in energy usage by those viewers. And
14:19:14 16 I've seen the same thing happen countless times
14:19:18 17 with viewings of Kilowatt Ours. We also have a
14:19:18 18 curriculum that teaches students how to read
14:19:20 19 their electric meters and save energy. And
14:19:22 20 getting programs like this into the schools I
14:19:24 21 believe is a vital ingredient of success.
14:19:26 22 My organization, Kilowatt Ours, is also
14:19:30 23 organized -- or developing a pilot program to
14:19:30 24 train volunteers to go out and retrofit houses
14:19:34 25 and offer those home energy assessments and our

goal is to make Nashville a model energy efficient community similar to Austin which, as you know, is saving over 600 megawatts a day from demand side programs.

One of the most cost effective load reducers is solar thermal. That's something I don't hear talked about so often in these parts, but it's one of the greatest untapped renewable demand side energy sources in the Valley, so I urge TVA to put that in the plan.

To wrap it up, the Tennessee Valley Authority has a history of pushing the envelope with a bold mission of economic development and stewardship of the environment. So I hope that we may reinvigorate that mission and continue working together to train a new work force and build a new economy around re-electrifying the South with the cleanest sources of power available. Thank you.

MR. FRANCIS: Thank you, Mr. Barrie. And now we'll hear from Mr. Baugh from the EPA.

MR. BAUGH: Gentlemen, good afternoon. I greatly appreciate the opportunity to appear today to speak with you on these very important issues and I also commend the Tennessee Valley

Authority for realizing the importance of reducing the growth in power demand and increasing its emphasis on energy efficiency.

In addition to economic benefits that may accrue from reduced demand, the use of fewer energy inputs per unit of gross domestic product has a positive impact on the quality of our air, our water and land resources and on the ability of our ecosystems to provide their service functions.

Generation of electricity through today's large scale commercially available sources can produce pollutants that adversely impact the environmental quality and human health. These pollutants can also alter the ability of ecosystems to provide services necessary for the survival and well-being of humans, terrestrial wildlife or aquatic species.

Electricity generation is a significant source of air emissions in the United States today. EPA reports indicate that fossil fuel fired power plants are responsible for about 67 percent of the nation's sulfur dioxide emissions, 23 percent of nitrogen oxide emissions, and approximately 40 percent of the

manmade carbon dioxide emissions.

While impacts of power generation on air quality may be more evident, there are other environmental impacts that are less well known. Production of fuels such as coal, natural gas, uranium and others can impact water availability and quality and may result in generation of solid and hazardous waste. The use -- power plants use large quantities of water from lakes and rivers for producing steam and for cooling. These withdrawals and subsequent discharges may adversely impact the health of fish, other aquatic species. Similarly the power generation can also result in generation of solid and sometimes hazardous waste. So clearly improving efficiencies in energy generation is good for the environment from a variety of perspectives.

Today I want to focus my remarks in two areas. EPA has programs and tools that can help TVA achieve its goals for implementing more efficiency and reducing demand. More specifically, one such program is called the Environmental Technology Verification Program. Secondly, I'm going to talk to you about the National Plan for Energy Efficiency. You've

already heard a little bit about that in the previous panel, but there are several recommendations in the plan regarding the need for broad communication of the benefits and opportunities for energy efficiencies. This recommendation involves customer demand, an area that you've indicated is of interest.

EPA's Environmental Technology Verification Program is managed by EPA's Office of Research and Development and it seeks to provide credible performance data for commercial ready environmental technologies. Understanding performance attributes can speed the acceptance of technologies into the marketplace which, of course, benefits purchasers, permitting authorities, vendors, and the public. The ETV program develops testing protocols and verifies the performance of innovative technologies that appear promising for improving protection of human health and the environment.

The ETV program is carried out through six centers that have a media or industry focus and of particular interest to TVA should be the Greenhouse Gas Technology Center and the Air Pollution Control Technology Center. Nearly 400

14:24:28 1 technologies have been evaluated by ETV since
14:24:32 2 the program began in 1995. And as TVA considers
14:24:36 3 how to make its production and delivery systems
14:24:38 4 more efficient, it will likely survey the
14:24:42 5 current state of relevant technology and the
14:24:44 6 current state of research in this area, so any
14:24:46 7 promising commercial ready technologies that are
14:24:50 8 identified or developed by TVA that are not well
14:24:52 9 known in the marketplace might well receive a
14:24:56 10 boost toward commercialization by participating
14:24:58 11 in an ETV program evaluation. And there are
14:25:04 12 details about the ETV program on the EPA website
14:25:08 13 at epa.gov/etv.
14:25:08 14 In late 2005, EPA and the Department of
14:25:16 15 Energy began to facilitate a public private
14:25:18 16 initiative to create a sustainable, aggressive
14:25:22 17 national commitment to energy efficiency
14:25:24 18 through collaborative efforts of gas and
14:25:26 19 electric utilities, utility regulators and other
14:25:30 20 partner organizations. TVA is one of
14:25:32 21 approximately 50 stakeholder organizations that
14:25:38 22 participated in the leadership group for this
14:25:40 23 initiative and this group's collective thinking
14:25:42 24 has resulted in the production of the National
14:25:46 25 Action Plan for Energy Efficiency. This plan

14:25:48 1 contains several recommendations and tools
14:25:50 2 specifically designed to assist utilities in
14:25:52 3 implementing and communicating the importance of
14:25:56 4 energy efficiency measures.
14:25:58 5 The five major recommendations from the
14:26:00 6 plan are as follows: Recognize energy efficiency
14:26:04 7 as a high priority energy resource, make a
14:26:08 8 strong long-term commitment to implement cost
14:26:12 9 effective energy efficiency as a resource,
14:26:14 10 broadly communicate the benefits of and
14:26:16 11 opportunities for energy efficiency, provide
14:26:20 12 sufficient, timely, and stable program funding
14:26:24 13 to deliver energy efficiency where cost
14:26:26 14 effective, and modify policies to align the
14:26:30 15 utility incentives with the delivery of cost
14:26:34 16 effective energy efficiency and modify rate
14:26:38 17 making practices to promote energy efficiency
14:26:40 18 investments.
14:26:42 19 As a large supplier of power, TVA has a
14:26:46 20 unique opportunity to communicate information to
14:26:48 21 its customers about more efficient power usage.
14:26:52 22 It also has the ability to help reshape how
14:26:56 23 customers approach their demand for power. As I
14:26:58 24 am sure you're aware, experience shows that
14:27:00 25 energy efficiency programs help utility

14:27:04 1 customers save money and contribute to lower
14:27:06 2 cost energy systems while reducing environmental
14:27:08 3 impact. These benefits, however, are not fully
14:27:14 4 documented nor recognized by customers, by
14:27:16 5 utilities, by regulators or policy makers.
14:27:20 6 More effort is needed to communicate
14:27:20 7 the business case for energy efficiency benefits
14:27:24 8 for all decision makers and to show how a well-
14:27:26 9 designed approach to energy efficiency can
14:27:30 10 benefit customers, utilities, and society.
14:27:34 11 These benefits include reducing customer bills
14:27:36 12 over time, fostering financially healthy
14:27:40 13 utilities, and contributing to positive societal
14:27:42 14 net benefits overall.
14:27:46 15 Key stakeholders must also be taught to
14:27:50 16 recognize that although energy efficiency can be
14:27:52 17 an important low cost resource to integrate into
14:27:56 18 the energy mix, it does require funding, just as
14:27:58 19 construction of a new generation capacity
14:28:02 20 requires funding. Further, education is
14:28:04 21 necessary on the impact that energy efficiency
14:28:06 22 programs can have in concert with other energy
14:28:10 23 efficiency policies such as building codes,
14:28:12 24 appliance standards, and tax incentives, and all
14:28:16 25 this is discussed in the National Action Plan

for Energy Efficiency.

A key element of the National Action Plan involves communicating the benefits of energy efficiency and the mechanisms and policies that might need to be modified so that each important stakeholder, that is, the utilities, the customers and society at large can benefit from energy efficiency investments.

While the implementation of energy efficiency policies and use of energy efficient equipment saves resources and lowers utility costs, it also reduces utility sales, of course. Therefore, the effect on utility financial health must be carefully evaluated. Toward that purpose, the plan has a tool called the energy efficiency benefits calculator, which has been developed to help educate stakeholders on the broad benefits of energy efficiency. The calculator is a simplified tool, but it demonstrates the case for energy efficiency from the perspective of the consumer, the utility, and society.

While the calculator allows the perspective of each major stakeholder to be evaluated, the guidance it offers customers is

14:29:34 1 particularly useful as a communication and
14:29:34 2 education tool. The calculator concludes that
14:29:38 3 the cost of energy efficiency should allow
14:29:40 4 customer bills to decline over time as a result
14:29:44 5 of investment in cost effective energy
14:29:48 6 efficiency programs. This decline, however, may
14:29:50 7 be preceded by an initial rise in customer bills
14:29:52 8 that reflect the cost of implementing those
14:29:56 9 energy efficiency programs that will ultimately
14:29:58 10 lead to the lower bills.
14:30:02 11 To build customer support for utility
14:30:04 12 efficiency programs and to support the
14:30:06 13 credibility of utility companies, it's extremely
14:30:10 14 important that customers understand that there
14:30:12 15 may be an initial short-term temporary increase
14:30:16 16 in utility bills before the economic benefit of
14:30:20 17 efficiency is fully reflected in the bill.
14:30:24 18 At EPA we believe that environmental
14:30:26 19 responsibility is everyone's responsibility.
14:30:28 20 Thankfully, America is shifting to a green
14:30:32 21 culture with consumers embracing energy
14:30:34 22 efficient products and making energy efficient
14:30:38 23 choices. It's more important today than ever
14:30:40 24 before to emphasize energy efficiency.
14:30:42 25 The potential environmental economic

cost of energy efficiencies and energy generation are increasing. The report of Working Group One of the intergovernmental panel on climate change indicates there is increasing consensus that global warming is taking place and that human activity has very likely caused much of the warming over the last 50 years. EPA's U. S. Greenhouse Gas Inventory Report shows that energy related activities account for three-quarters of human generated greenhouse gas emissions in the U. S, mostly in the form of carbon dioxide emissions from burning fossil fuels.

We must seize the opportunity to create a new energy production and consumption paradigm for the 21st century that will protect human health and the environment as well as advance the American economy. Thank you.

MR. FRANCIS: Thank you, Mr. Baugh. Out next speaker will be Mr. Safer.

MR. SAFER: Thank you for scheduling these important listening sessions. I respectfully appreciate the opportunity to speak for many environmentally concerned Tennesseans. I'm honored to be a participant in these

proceedings.

Energy efficiency and demand response are crucial, first step action items in our efforts to minimize the global climate challenges we face. These are the environmental first choice. Waste not, want not is a core value. The benefits of using less energy to continue the evolution of human society accrue economically, socially, and environmentally.

Doing more with less is a satisfying, gratifying experience at all levels. More and more people in large organizations are becoming aware of the importance of increasing energy efficiency. It is becoming like motherhood and apple pie. The real question, though, is what level of commitment TVA is willing to give to these strategies and how much TVA is willing to rely on implementation of these to meet our future energy needs.

From the environmental perspective, global warming is a threat of the highest magnitude which demands a concerted, all-out effort to build a sustainable society. We need to engage and use the best of human effort to respond quickly and effectively to reduce our

14:33:00 1 production of greenhouse gases and bring our
14:33:02 2 lifestyles and economies into face with our
14:33:04 3 planet's life support systems.
14:33:06 4 We all need clean water and clean air.
14:33:10 5 The only place we have to live is this thin,
14:33:14 6 habitable biosphere provided by the Earth. We
14:33:16 7 all value our own and our decendents' future.
14:33:18 8 Not only do we need a healthy planet, we want a
14:33:24 9 health economy. The two are interdependent and
14:33:24 10 help to support healthy societies. This is the
14:33:26 11 triple bottom line, social, economic, and
14:33:30 12 environmental, and that is the only -- and that
14:33:32 13 is only possible on a healthy planet.
14:33:36 14 When it comes to electrical energy, a
14:33:38 15 key component of the healthy triple bottom line,
14:33:40 16 we are caught between the rock and a hard place
14:33:42 17 of Tennessee folklore. Coal brings a host of
14:33:46 18 environmental problems at every step in its
14:33:48 19 supply chain. It is a major greenhouse gas
14:33:52 20 contributor. Mountaintop removal mining
14:33:54 21 destroys the iconic mountains we love while
14:33:56 22 tearing apart neighboring communities and
14:33:58 23 devastating our precious headwater streams.
14:34:00 24 Jumping from coal to nuclear is going
14:34:04 25 from the frying pan into the fire. Nuclear

14:34:06 1 plants are a serious risk, both from accidents
14:34:08 2 and terrorism. They are extremely expensive.
14:34:12 3 Nuclear waste continues to build up at every
14:34:16 4 operating facility with no good place to put it
14:34:18 5 for years into the future, if ever. What we
14:34:22 6 should do is ask David Freeman. The former
14:34:24 7 chairman of TVA has recommended in his latest
14:34:26 8 book, Winning Our Energy Independence, plan to
14:34:30 9 phase out all coal and nuclear plants as soon as
14:34:32 10 possible. He gives it a time frame of about
14:34:36 11 30 years. I know that sounds like science
14:34:38 12 fiction, but today's mundane technology such as
14:34:40 13 cell phones, fax machines, e-mail, the Internet,
14:34:44 14 were all considered just as unbelievable less
14:34:46 15 than 50 years ago.
14:34:48 16 As we suffer from this drought of
14:34:52 17 historic proportions, we have found even our
14:34:54 18 hydroelectric capacities are vulnerable to
14:34:54 19 previously unthinkable low reservoir levels.
14:34:58 20 The drought also affected the operations of the
14:35:00 21 Brown's Ferry Nuclear Plant which had to be shut
14:35:02 22 down at times of peak demand because of cooling
14:35:06 23 water issues.
14:35:08 24 The situation is dire but not hopeless.
14:35:10 25 There are solutions and we are here today to

14:35:12 1 talk about reducing our energy usage. The first
14:35:16 2 quickest and most efficient response, the topic
14:35:20 3 tomorrow, renewable energy sources, is the next
14:35:22 4 step. The fact that TVA has scheduled these
14:35:24 5 meetings is cause for hope and in my view
14:35:26 6 cautious optimism. How we respond to challenges
14:35:30 7 is always a measure of character and in
14:35:32 8 America's history we have met every challenge we
14:35:34 9 have faced. Energy conservation programs have
14:35:38 10 been successful at TVA in the past and they have
14:35:40 11 laid the foundation for success in the Board's
14:35:44 12 goal of 1200 megawatts in reductions in the next
14:35:46 13 five years.
14:35:48 14 This is not our first time around the
14:35:50 15 block on energy efficiency and demand response.
14:35:52 16 TVA and many other utilities as well as state,
14:35:56 17 local and national governments have much
14:35:58 18 experience in these areas and have been working
14:36:00 19 on these for years, usually with much more
14:36:04 20 intensity in response to emergencies. Whenever
14:36:06 21 we have been forced to cut back on our energy
14:36:08 22 usage, we have been able to respond in an
14:36:12 23 appropriate manner.
14:36:12 24 Unfortunately when the crisis was over,
14:36:12 25 most Americans reverted to previous energy use

patterns. This left the eco pioneers and those utility conservation programs that survived to explore the cutting edges of energy efficiency and renewables without much public support.

Through all this, there have been technological advances which have spread through the marketplace and from which we all benefit. Improved building codes, compact fluorescent light bulbs, higher efficiency appliances to name a few. Much has been learned, but the implementation throughout the U. S. has been extremely uneven. Areas like California and New England have much lower per capita electricity usage than that of the Tennessee Valley. TVA should move quickly to implement those programs that have proven successful and cost effective. The next steps are developing more innovative pilot programs such as the ones TVA has started.

I support TVA's commitment stated in the 2007 strategic plan. Quote, in partnership with others, TVA will strive to be a leader in energy efficiency improvements and peak demand reduction. This sets the bar high. In any discussion of peak demand reduction, it is important to note the contributions that on-site

14:37:26 1 photovoltaic can make. The sun is shining its
14:37:28 2 brightest during our peak energy -- or peak
14:37:30 3 summer energy loads.
14:37:32 4 The good news being created by all the
14:37:36 5 bad environmental news and terrifying forecasts
6 of the impending, incomprehensible global
14:37:42 7 climate changes is the eco pioneers and energy
14:37:44 8 conservation geeks are not so lonely anymore.
14:37:48 9 More and more people understand the realities
14:37:50 10 we are faced with and suddenly priorities are
14:37:54 11 changing on the societal, cultural level.
14:37:54 12 Perhaps the recent drop in Tennessee
14:37:56 13 Valley electrical usage is an early indication
14:38:00 14 of this shift. Reflecting these concerns, the
14:38:02 15 U. S. Congress has placed a much higher priority
14:38:04 16 on addressing climate change than in previous
14:38:08 17 years. Last November the Tennessee
14:38:12 18 Environmental Council and Tennessee Conservation
14:38:14 19 voters held the Summit for a Sustainable
14:38:18 20 Tennessee at David Lipscomb University in
14:38:18 21 Nashville. Over 200 people representing 80 plus
14:38:22 22 organizations and governmental agencies from
14:38:24 23 across the state came together for two to three
14:38:26 24 days to agree on our 2008 priorities to move
14:38:30 25 forward and shared vision of a sustainable

Tennessee. The identified, number one priority is responding to the challenges of climate change, lessening our carbon footprint, both individually and collectively in the state of Tennessee.

TVA can play a key role in the progress that we make in creating a sustainable Tennessee. TVA has been a big part of the economic and social progress we have seen since its inception. I encourage TVA to partner with state and local governments to build this bright future. TVA can help put the states in the Tennessee Valley in a position to create the green jobs being discussed in the current presidential campaign.

Tennessee Governor Phil Bredesen has recently announced his intentions to address energy efficiency at the state level. TVA and state government should work together to create the most energy savings possible. The Bonneville Power Authority worked with the states of Washington and Oregon to increase energy efficiency in those states' building codes. Our current building codes do not maximize energy performance. There are many

14:39:34 1 opportunities. For example, Amory Lovens of the
14:39:38 2 Rocky Mountain Institute says that electrical
14:39:38 3 standards call for minimum safe standards for
14:39:42 4 wire size. They do not take into account the
14:39:44 5 energy savings possible from larger gauge wires.
14:39:48 6 TVA is in a virtually unique position
14:39:52 7 to lead the United States and the world in
14:39:54 8 forging our energy efficiency conservation and
14:39:56 9 demand response programs. There are no
14:39:58 10 stockholders who want to maximize short-term
14:40:02 11 profit. Craven Crowell, the former chairman of
14:40:04 12 TVA, said to the Oak Ridge Rotary Club on
14:40:08 13 August 26th of 1999, quote, unlike private
14:40:10 14 utilities, we can and we must take a more
14:40:12 15 visionary view of the long-term energy needs of
14:40:16 16 our region and the world. We must make
14:40:18 17 decisions that serve the greater good, even when
14:40:22 18 the near term economic benefits may not be
14:40:24 19 readily apparent. That's what sets TVA apart
14:40:26 20 from the other utilities.
14:40:30 21 The structure and ownership of the
14:40:32 22 distribution network is consistent with and
14:40:34 23 conducive to actualizing this vision. The power
14:40:38 24 distributors should be supportive and
14:40:40 25 participatory in creating the new energy

14:40:44 1 efficient Tennessee Valley. Municipal or co-op,
14:40:44 2 the ultimate owners are the users of the
14:40:48 3 electricity. All money saved will stay with
14:40:50 4 those customers.
14:40:50 5 TVA could become a key player in our
14:40:54 6 nationwide, all-out effort to respond to the
14:40:56 7 challenges of global climate change. Big
14:41:00 8 challenges can be turned into huge opportunities
14:41:04 9 for those with a bold vision and the ability to
14:41:04 10 respond effectively. This critically important
14:41:08 11 mission will be facilitated by the convergence
14:41:10 12 of environmental, social, political,
14:41:14 13 technological and economic factors. I hope that
14:41:16 14 TVA will embrace this challenge enthusiastically
14:41:18 15 with the kind of commitment that is created the
14:41:22 16 successes in its history.
14:41:24 17 MR. FRANCIS: Thank you, Mr. Safer.
14:41:26 18 Dr. Smith will be the final speaker on the
14:41:28 19 environmental panel. Dr. Smith.
14:41:30 20 DR. SMITH: Great. Thank you very
14:41:32 21 much. It's great to be here to address each of
14:41:34 22 you and I appreciate the opportunity. I, too,
14:41:38 23 am cautiously optimistic about what appears to
14:41:40 24 be the turning of the battleship and the
14:41:42 25 momentum to really take a serious look at energy

efficiency, so I think it's a great opportunity and I applaud each and every one of you for making it a high priority.

My organization, South Alliance for Clean Energy does work throughout the Southeast United States. We have a long history of sharing our views, both formally and informally with TVA over the years, as well as working with other utilities throughout the Southeast on challenges around reducing the environmental footprint and preparing for a carbon constrained world, which we are rapidly moving into.

My comments today, I want to focus in on a couple of structural things that I hope are useful to you as Board members because I think getting the structure right, getting the goal right, and then looking at a couple of opportunities, both in the industrial and the residential sector are very important, and talk a little bit about education.

The good news is there's lots of opportunity. The reality is that TVA has not been serious about energy conservation and energy efficiency for probably close to 20 years. There's been programs, but they haven't

14:42:42 1 been aggressive. And, therefore, over the
14:42:44 2 course of that 20-year period, there's been a
14:42:46 3 lots of advancements in technology and that
14:42:50 4 creates an opportunity, whether it's more energy
14:42:52 5 efficient appliances, whether it's energy
14:42:54 6 efficient motors, energy efficient heating and
14:42:56 7 cooling systems, all these opportunities now are
14:43:00 8 out there and we need to aggressively go out and
14:43:02 9 harvest them to take advantage of what's there.
14:43:04 10 So I think that's -- we should view this as an
14:43:06 11 opportunity because we'll help consumers save
14:43:10 12 money and I think it will also help TVA in its
14:43:12 13 overall financial health.
14:43:14 14 The first thing I want to talk about is
14:43:14 15 structure because I think the key thing here is
14:43:18 16 to get the structure right about how TVA is
14:43:20 17 going to address energy efficiency going forward
14:43:24 18 both internally and how they interact
14:43:28 19 externally. And I mentioned in my comments that
14:43:30 20 I think it's important that TVA go forth and
14:43:32 21 establish an energy efficiency advisory council.
14:43:36 22 You've got a Regional Resource Stewardship
14:43:38 23 Council that advises you on matters. You know,
14:43:40 24 we've got advice coming in from different
14:43:42 25 directions on other programs. But if this is

truly a high priority for TVA, I think there's no reason why you don't go ahead and pull the trigger and set up this advisory council because this is not a sprint, it's a marathon.

And I do understand that in the short run there had been some resistance to doing that because of Federal red tape, but I think going ahead and getting that started and getting that in motion would do a lot. And I think you could populate it with your key customers, the power distributors and industrial customers as well as various interested parties and stakeholders both inside the Valley and outside the Valley and it would give the staff a regular, interactive session to where they're able to bounce ideas off and get feedback. And it's been mentioned several times, TVA is not going to be able to do this alone and so you need to bring people in and getting them invested both in the opportunities and the challenges and allow there to be direct dialogue between parties so that you're not having to mediate maybe some hang-ups that could be better mediated through direct communication between various parties. So I think TVA could facilitate that and I think it

would help you in the long run.

The other thing is I feel very strongly that TVA needs to reinvigorate its integrated resource planning process and long-range planning. Whether you update the historic IRP that was done in the 1990s or whether you actually initiate a new one, but IRP or portfolio management is absolutely critical to putting supply side options like the proposal for new power plants on the same footing with demand side options. And there's really no way that you're going to have the cultural evaluation if you don't do that long-range planning portfolio management or integrated resource planning and I shared some comments in there about that.

The other thing is you need to establish a goal and it needs to be a stretch goal, an ambitious goal. And, again, with no coordination from the previous panel, it's ironic that several of us are coming to the same conclusion, that that should be approximately 1 percent of annual sales. That goal tied to annual sales is what is considered generally a leadership goal. I think it's something that

you can ramp up to over the next couple of years and then I think you can exceed that. I think having a goal of trying to get to 2 percent of annual sales going forward over the next ten years will put you in a leadership position.

Those savings will compound over time. So if you save 1 percent this year and you save 1 percent next year, that means you're saving 2 percent and eventually you will create an energy efficiency portfolio that will really be a significant player in your overall mix of how you meet demand and I think that's critically important. So having that 1 percent of annual sales goal is very very important.

The other thing that I mention, and Tom and I and others have talked about this, is having a clean energy standard offering so that you can go out and mine the opportunities in recycled energy or combined heat and power. Tremendous opportunities out there. We've had some discussions about this. We have, preliminarily, through another entity, they have identified close to 500 megawatts of combined heat and power opportunity. It's great for industrial customers to provide a way to get

them to go and look at how they waste heat, look at various opportunities that are out there and get them to engage in this. And I think in your text you have some language for a standard offering and I know that that's being actively discussed and I think it should be a high priority because not only is it looking at efficiency within how TVA uses energy but making the whole Valley energy efficiency in picking up on these missed opportunities.

The other thing is education. And I think one of the -- Jeff and some others have flagged this -- that once consumers understand how they're using energy -- and we really -- people take this for granted. They take energy for granted in the Valley. It's out of sight, out of mind, largely. So what we need to do is educate. What we need to be able to do is help people understand whether their house is a Hummer or whether it's a Prius and I think the best way to do that is to basically really actively promote the home energy rating system and basically get people to rate their homes, get the infrastructure, work with the raters that are out there to get everyone's homes rated

and tie your incentives and tie the education to the rating system so people can know whether their home is a good performing home or whether it's a poor performing home and if it's a poor performing home, these rating systems will actually give them very clear direction on how they can move their house more towards an energy efficiency house.

We all know what the miles per gallon on our car is, but we don't know what it is with our homes and I think that's very very important and I think that's something that TVA can tie a number of its programs to in a very aggressive way.

I also believe that it's going to be critically important for TVA to send a market signal to its customers. And I know there's the discussion about the time of day use rates and other things like that. But TVA needs to move quickly and aggressively in getting that program implemented. I know you're not going to be able to do it without the support and involvement of the distributors of TVA's power and I think that raises a real interesting point. I mean I honestly feel that the Board is struggling with

this and moving forward and I think that all members of the public must understand that unless the power distributors embrace this and aggressively engage this, there's no way that TVA is going to be successful.

And so as was mentioned, in a public power setting we are all owners in a very real sense of these distribution companies, whether they be co-ops or munies and we have got to engage as consumers to make sure that the co-ops and munies engage aggressively in meeting TVA as an honest partner in this. And I can tell you from my work in -- working -- my family work in design and energy house here in the Knoxville area and working with KUB, there's a huge void there and there's a number of distributors that are dual powering fuel in the sense that they provide both electricity and gas that aren't providing a number of the incentive programs that TVA is providing. We've got to figure out a way to make it fuel neutral.

We've got to get the distributors to engage aggressively and I think the best way to do that is to engage the rate structure in a way that market signals are sent through the

14:49:56 1 distributors and if they're not going to pass
14:49:58 2 and educate their customers, then they're going
14:50:00 3 to have to foot the bill. And I think that what
14:50:02 4 they'll do, though, is if you send the right
14:50:04 5 market signal to the distributor, the
14:50:06 6 distributor will send the right market signal to
14:50:08 7 the customer and then all of a sudden people are
14:50:10 8 going to be much more willing to engage with you
14:50:14 9 in really doing -- in capturing all the cost
14:50:16 10 effective energy efficiency.
14:50:16 11 So you are a regulator as well as the
14:50:20 12 Board of TVA. And as the regulator, given that
14:50:22 13 there is nobody else regulating this Valley, if
14:50:26 14 the rate structure is wrong and we're basically;
14:50:30 15 losing out on capturing that energy efficiency
14:50:30 16 because the rate structure is wrong, then you as
14:50:34 17 regulators and the Board have that opportunity
14:50:36 18 to correct that situation. And unfortunately,
14:50:36 19 it's been too long neglected and we must address
14:50:42 20 it aggressively.
14:50:42 21 So I want to reinforce what several
14:50:42 22 people have said. The greenest electron is the
14:50:46 23 one you never use. We're heading head on into a
14:50:48 24 whole new world in a carbon constrained world.
14:50:52 25 TVA has a heavy dependence on fossil fuels and

14:50:58 1 the most cost effective, fastest, cleanest,
14:51:00 2 greenest way to correct that situation is to
14:51:02 3 pursue energy efficiency.
14:51:02 4 So I applaud you in what you're doing
14:51:04 5 here and we look forward to being a constructive
14:51:08 6 partner with you and hope that we'll meet this
14:51:10 7 endeavor together. Thank you.
14:51:14 8 MR. FRANCIS: Thank you, Dr. Smith. At
14:51:16 9 this time the members of the Board may have some
14:51:18 10 questions of the panel.
14:51:18 11 MR. SANSOM: Question?
14:51:18 12 MR. BOTTORFF: Yes. Jeff Barrie?
14:51:24 13 MR. BARRIE: Barrie.
14:51:26 14 MR. BOTTORFF: Jeff Barrie. In your
14:51:28 15 remarks or in your paper you referred to a
14:51:30 16 Virginia Tech study --
17 MR. BARRIE: That's right.
14:51:32 18 MR. BOTTORFF: -- that talked about --
14:51:32 19 that showed that communications can have an
14:51:36 20 impact and lower by 17 percent, I think. Could
14:51:38 21 you give us a little bit more -- is that -- you
14:51:42 22 know, is this some communication that happened,
14:51:44 23 you know, once a day every time for 30 years or
14:51:48 24 I mean is it, we'd say, marketing with the gross
14:51:52 25 rating points high, you know? Give us some

sense a little bit about what has to happen before you can start to --

MR. BARRIE: Sure. Gladly. And that report, I have a copy of it, and it's also referenced in my written comments. I'll be happy to share that summary with you. What happened is this study went out to a couple of hundred homes, knocked on doors, gave ongoing presentations about how to save energy through written materials and face-to-face communication and then also had a separate study group that all they did was tune in their TVs on a certain day and time once.

The group that got the face-to-face and hands-on lectures, basically, reduced their energy usage about 6 percent that summer. The group that watched one TVA show reduced their energy usage 17 percent that summer. Just one, a single TV show. And there are a number of energy saving steps that were outlined in that TV show, including adjusting thermostats, using fans, ceiling fans, and probably about ten more things. And, again, that's all highlighted in this summary that I'd be happy to hand to you, as we.

14:53:00 1 MR. BOTTORFF: And you're leaving us a
14:53:00 2 copy of that report?
14:53:02 3 MR. BARRIE: Sure.
14:53:02 4 MR. BOTTORFF: Thank you very much.
14:53:06 5 MR. SANSOM: Jeff, what about students?
14:53:10 6 Go down a little bit and help us, because we've
14:53:12 7 talked about that and be interested in your
14:53:16 8 perspective on educating students.
14:53:16 9 MR. BARRIE: Schools?
14:53:18 10 MR. SANSOM: Yes.
14:53:20 11 MR. BARRIE: Yeah. My experience is
12 mostly in grades 4 through 12. And we have a
14:53:22 13 curriculum that goes along with a film. And
14:53:24 14 like Stephen Smith was saying, even the most
14:53:26 15 energy efficient homes are not going to be
14:53:28 16 efficient if the people using those homes are
14:53:30 17 not aware and using that home to its fullest
14:53:36 18 potential for energy efficiency. So the ongoing
14:53:38 19 behavioral education piece is key to this
14:53:38 20 long-term strategy.
14:53:40 21 MR. SANSOM: I've got to interrupt you.
14:53:42 22 This is a TVA day. Listen.
14:53:48 23 MR. BARRIE: Yes. There we go. We're
14:53:50 24 all benefitting from the cool air in here today.
14:53:54 25 Well, we go into the classroom and show the

movie and kids are so fired up that at moment, they just want to get involved and do something. So we decided instead of just showing the movie, we had to have a series of steps and it's where we leave an activity behind or a series of activities with the teacher who can then assign it as a homework assignment and they get a grade for this. And University School in Nashville is actually incorporating this into their sixth grade curriculum, so every sixth grade student will now be doing this when we come through this program in Nashville.

So the students learn to go home and read their electric meter and do a basic home energy assessment. And the students, the kids become the advocates. And I have a three-year-old daughter and I definitely listen to her when she has something to say. She's not quite old enough to understand the whole energy cycle yet, but I know she will.

But many times when students come home with a lesson or when parents' children come home with lessons, then they listen, the parents listen. So it becomes a family behavior and understanding, as well. And the kids benefit by

14:54:58 1 getting a grade and doing a lot of hands-on
14:55:00 2 education and learning, as well. That's a
14:55:02 3 summary of what we do.
14:55:08 4 MR. THRAILKILL: Stephen, you talked
14:55:10 5 about grading the house. We're all in agreement
14:55:12 6 with that. Have you seen a real rigorous system
14:55:16 7 to do that?
14:55:20 8 DR. SMITH: Well, the home energy
14:55:24 9 rating system is a standard and there are home
14:55:28 10 energy raters that will go out and do this. So
14:55:30 11 they come to your home and they follow -- you
14:55:32 12 can look at RezNet which is this sort of -- and
14:55:36 13 they will go through and do that and they will
14:55:38 14 then compare it against the international model
14:55:42 15 code and then base -- your house will trend
14:55:44 16 either above or below that and you will get a
14:55:48 17 report that rates you against that home.
14:55:50 18 And that is the state of the art as I
14:55:54 19 understand it for really doing this. And I
14:55:56 20 think there are a number of people in the Valley
14:55:58 21 that have been trained. We need to train more.
14:56:00 22 We need to aggressively make sure that homes
14:56:02 23 that are built and have this system, that we tie
14:56:06 24 energy efficient mortgages, which I think is
14:56:08 25 already happening, and I think TVA has varying

degrees of that. But the full blown HERS rating is what I think we need to strive for because that's where you do the blower door test and you do the duct test and all these things, because that's where you really begin to capture the leaks and the inefficiencies that have historically been built in our homes.

And then as was mentioned earlier, the best opportunity is to capture it in new construction because that's the easiest, smartest way to take advantage of this. So I would say this HERS rating is the way to go and aggressively pursue that.

MR. SANSOM: Don, this is a comment and a question. You made -- in your statement you made the comment that, however you said it, the summer day during peak demands, the most sun day or however you said that. Years ago I put solar panels on my house and I learned -- but it would be interesting to confirm this -- that a clear spring day or a fall day I had higher temperatures off my solar panels and my hot water than I did in a hot summer day even though it was relatively clear. It would be interesting to know that, because I'm convinced

after my experience that you get your best temperatures in the spring and fall. Just a comment. I don't know whether you know that or not.

MR. SAFER: Well, yeah, the atmospheric conditions do affect the amount of solar gain that you can get. But with the evolution of the solar technology, I think it's inarguable that the sun is out there creating those high temperatures and as we can capture more and more of that energy and turn it into electricity, it's right there when we need it rather than -- as a -- you know, in reference to the summer peak. But, yeah, that's a counterintuitive point that I agree with, yes.

MR. SANSOM: Stephen, I want to make a couple of comments. One, your suggestion of a committee of however, we are talking about that. We accept that comment and think on our resource council it was very effective when we went through the property thing. So I think your comments, we take those and we're trying to consider it.

DR. SMITH: Right. I served on the Resource -- Regional Resource Stewardship

Council for the first two terms and I found it to be a very good vehicle. And then also with the Green Power Switch Program, we have an interactive team that meets on a regular basis with the power distributors and those of us who have been supporting TVA in the efforts around Green Power Switch. And I think having that frank dialogue where you can really engage the various stakeholders where they learn together and then they get to hear each another's points of view, takes a little bit of the pressure off of you guys because it lets a more direct dialogue.

And that's since you facilitate the challenges that TVA is up against and you facilitate all of us struggling to find those solutions. And so I think this is going to be as big of a challenge as anything you face and maybe even bigger because of the fact that we're going to have to be working with external stakeholders in such a big way. So I see it as a critical piece of doing that and I know that going through a FACA panel and getting that established legally with the Federal government is always a little bit of a challenge. Maybe

you can do that, maybe you can't. But even if you have to go through the red tape, I think you -- given that this is a marathon and not a sprint, it will be a long-term investment that I think will pay bid dividends.

MR. SANSOM: Also, your 1 percent -- the earlier panel and y'all --

DR. SMITH: And there was no coordination. I had no coffee with those folks. I mean I think that is the real leadership.

MR. SANSOM: You know, it's interesting, though, give ourselves a break. When we talked about Watts Bar, which I know there's issues with that, but, you know, that's 1200 and just kind of arbitrarily the Board and Tom, we've sat there and said, well, we ought to try to get 1200 back. If we're going to create 1200, we ought to get 1200 back. So y'all coming at 1 percent might be a good number. We don't know. But we don't know the number --

DR. SMITH: Right.

MR. SANSOM: -- and so it's not in disagreement. We're just trying to figure out a number, too. But our number came from a very unscientific, let's try to get an equal amount

back by the time we do Watts Barr.

DR. SMITH: And I applaud that. And were struggling with the 1250 number and I think that it really is going to depend on how much of the 1250 is peak and how much of it is conservation. And I know that there is a very strong economic reason and there's a lot of motivation for TVA to get aggressive on the peak and I think that's important and we support that, but I also think that you don't want to neglect the overall conservation goal for base load and others because you're facing some very expensive potential investments and base load investment and so by having it as tied to annual sales, I think you will do a couple of things. You won't have it -- if there's a slowdown in the Valley, you can continue to pursue your goal without it being affected too much and then the other thing is that with peak, you want to not tie it only to peak because I think there's so much more that can be done.

And I'm a little concerned about the differentiation, so I think that's to be determined, how you guys are going to differentiate peak savings versus base load

15:01:26 savings, but they are both very very important.
15:01:28 MR. SANSOM: Well, I think that's one
15:01:28 that -- back to Jeff -- the public and educating
15:01:32 the public. I know with us that are two years
15:01:34 in this understand the difference between peak
15:01:36 and energy use is really big. And, you know, I
15:01:42 think we've got to -- we need to get to peak if
15:01:44 we can quicker than we do -- well, you know,
15:01:46 people say, well, I need to turn my lights off
15:01:50 at night, and I'm sitting there thinking, well,
15:01:50 if you knew what it meant to us at 4:00 o'clock
15:01:54 in the afternoon, it's a different story. So
that's really something we've got to wrestle
with.
15:01:58 DR. SMITH: Well, and that's the rate
structure, which I think y'all are struggling
with.
MR. SANSOM: That's right.
15:02:00 DR. SMITH: I think that's why sending
15:02:00 that market signal is so important.
MR. BOTTORFF: I think Don has a
question.
MR. SANSOM: Don, did you have a
question?
MR. DEPRIEST: No.

MR. BOTTORFF: No? Howard?

15:02:10 MR. THRAILKILL: Dr. Smith, in some of your supplementary notes and in prior conversations, you've brought up the issue of CHP. Would you give us just a feel for the dimensions of that opportunity?

15:02:20 DR. SMITH: Well, it's interesting. We partnered with a group called Recycle Energy Development that came down and have shared some of that with TVA staff. They did a preliminary just scan very quickly, very high level back in the fall and identified that there was about 500 megawatts of, they saw, very low hanging fruit teaming up with industrial customers to pursue conservation -- I mean combined heat and power.

And I think digging deeper and they basically -- in the notes there is the clean energy standard offering which would set the rules of the road right and I know that the State of Tennessee, the governor has put it even in his legislative package to eliminate some of those barriers. And I think that that's a great way to partner with the industrial partners and potentially with the distributors to really go out there and mine for that wasted heat,

pressure drops in gas lines and other things like that. They can all be turned into useful electricity that will then prevent TVA from having to out there necessarily and buy and produce their own generation which will impact all kinds of financial dimensions of TVA.

So I'm excited about this and I think it is a huge opportunity and I think the State of Tennessee is ready to be a partner and I think if TVA was to put this standard offering out, I think you would see a number of folks respond to that.

MR. THRAILKILL: Are you aware of a state or a power company that has done that successfully and that we could look at?

DR. SMITH: I would defer you to the folks that read the Recycle Energy Development. My understanding is there are a number of states. I know that California and some of the other states that have done -- have a history of more aggressively mining for combined heat and power and we can certainly get you some more information about that. But it's a huge opportunity and it's a way to bring more partners into the overall mix and increase the

overall efficiency.

MR. BOTTORFF: Okay. Gentlemen, thank you very much. Gil, we'll reconvene at 10 minutes after?

MR. FRANCIS: Yes, sir. 10 minutes.

(A break was taken.)

MR. FRANCIS: At this time we have our final panel of the day. The members are, from left to right, Elliot Boardman, Executive Director for Peak Load Management Alliance; Chris Miller with the Alabama Chapter of U. S. Green Building Council; Jack Simmons, President and Chief Executive Officer for the Tennessee Valley Public Power Association; and John Van Mol, Secretary and Staff Director for the Tennessee Valley Industrial Council.

Mr. Boardman, would you begin, please?

MR. BOARDMAN: Thank you. As I was introduced, I'm the executive director of the Peak Load Management Alliance, we call by the acronym PLMA. The PLMA is an association of leading energy professionals dedicated to promoting consumer participation in electricity markets using load management.

I really applaud TVA's goal of

achieving a leadership position in energy efficiency and peak reduction and the care TVA is taking to solicit the input of customers and those with experience in these areas. You are in a unique position to work with your distributors to help customers gain significant benefits from energy efficiency and peak load reduction by learning from what has been -- from what has worked elsewhere.

While the PLMA strongly believes in the benefits of both energy efficiency and peak reduction, I will focus my remarks on peak reduction alone. To make clear what I'm discussing, I want to first define what I mean by peak reduction and how PLMA members help deliver it. As requested by TVA, I will then offer some input to TVA's long-term plan to make peak reduction happen in the Valley region.

Peak reduction, also known as demand response, is when a utility works with its customers to reduce their use of electricity at those times when the electricity is most in demand. As you know, electricity cannot be stored to use it at a later time. It's the only commodity of which this is true and, therefore,

has the greatest variation in price of any commodity anybody can think of. If gasoline goes from $2 a gallon to $3 a gallon, we all get excited. But electricity can go from $20 a megawatt hour to $200 a megawatt hour and nobody even realizes it except those people that are buying electricity at that time.

Utilities must have the generating transmission and distribution infrastructure to meet demand at its peak, even if that peak is much higher than the average use. In fact, it's not unusual to find that 10 percent of a utility's infrastructure costs are spent to meet peak demand that occurs less than 1 percent of the time. If a utility can reduce its peak demand through demand response, it can postpone investments which drive up rates.

Airline practices provide a good analogy for demand response. We've all been on flights that the airline has overbooked. Instead of having another plane immediately available to transport the few passengers who won't fit on the original flight, it is less expensive for the airline to pay the passengers to take a later flight. I've often thought

about getting that additional ticket to fly to Florida at another time.

Demand response takes the same approach. Paying customers not to consume electricity at the peak time can be less expensive than building another power plant. Everyone is better off as long as customers can reduce their demand without jeopardizing their comfort or, in the case of businesses, their operations. Customers get lower energy costs, utilities can avoid some emissions and put off some expenditures. This is particularly important as the cost of power plants keeps rising. Last year alone, the cost of a power plant grew 27 percent. In addition, economic development gets a boost from keeping spending in the region.

Demand response has been around a long time in the form of interruptible rates whereby customers pay less for power as long as they are willing to interrupt their use of the power at the utility's request. What has sparked demand response's resurgence is the application of more sophisticated technology. Now companies, including several members of Peak Load

Management Alliance, can work with residence and business customers to find ways to reduce their use of electricity on peak. By using sophisticated thermostats in homes and web-based communications in business, these companies can provide a signal to customers as to when to reduce their usage. They can also monitor the results for the utility.

As a result, demand response has become a very reliable resource that utilities can count on during times of peak demand. A good example for TVA would be during last summer's heat wave when TVA hit a number of all-time system peaks.

I will now turn to offering some input to TVA's long-term plan to make demand response happen in the Valley region. As you design that plan, I urge you to consider the following. First, the emphasize the obvious. Design a demand response program by considering system needs and then customers' abilities to help you meet these needs. Second, keep your first program simple and straight forward for customers to participant in. Experience in other markets has shown that once customers gain

15:20:24 1 experience with demand response, it becomes much
15:20:26 2 easier for them to participate in more elaborate
15:20:30 3 programs.
15:20:30 4 Third, set rigorous standards in terms
15:20:34 5 of program performance, measurement, and
15:20:38 6 verification. These standards will insure that
15:20:40 7 the DR is a reliable, valuable resource.
15:20:44 8 Fourth, set aggressive goals in terms of program
15:20:48 9 size. Larger programs are more reliable than
15:20:50 10 small programs and larger programs will also
15:20:54 11 make a more appreciable dent in TVA's peak
15:20:58 12 demand.
15:21:00 13 Fifth, take advantage of the
15:21:02 14 capabilities of demand response aggregators,
15:21:06 15 work curtailment service providers as they're
15:21:08 16 sometimes called. DR programs have grown
15:21:12 17 dramatically in other markets and aggregators
15:21:14 18 whose sole purpose is demand response have
15:21:16 19 developed the ability to make programs easy and
15:21:18 20 risk free to customers and utilities alike.
15:21:24 21 Aggregator members of Peak Load Management
15:21:24 22 Alliance now have about 9,000 megawatts of
15:21:28 23 demand response under their management. This is
15:21:34 24 opposed to just a few hundred megawatts four
15:21:38 25 years ago.

15:21:38 1 And, finally, tie demand response into
15:21:42 2 energy efficiency. Once it has become easy for
15:21:44 3 customers to manage their electricity usage in a
15:21:50 4 DR program, they look for more opportunities to
15:21:52 5 reduce their energy costs. In addition,
15:21:56 6 customers can use the payments from DR programs
15:21:58 7 to make further cost effective savings happen.
15:22:00 8 To wrap up, thank you again for the
15:22:02 9 opportunity to tell you more than you ever
15:22:04 10 wanted to know about demand response. The
15:22:08 11 Valley region has a tremendous opportunity to
15:22:10 12 create significant benefits from energy
15:22:12 13 efficiency and demand response. We at the PLMA
15:22:16 14 are happy to help you in any way we can as you
15:22:18 15 develop and execute your strategy. We know that
15:22:22 16 not too long from now the Valley region will
15:22:24 17 serve as a leading example of how best to make
15:22:26 18 energy efficiency and peak reduction work.
15:22:30 19 Thank you.
15:22:30 20 MR. FRANCIS: Thank you, Mr. Boardman.
15:22:32 21 Mr. Miller.
15:22:34 22 MR. MILLER: Good afternoon. My name
15:22:36 23 is Chris Miller and I'm here representing the
15:22:38 24 Alabama Chapter of the United States Green
15:22:40 25 Building Council and also my company, Piedmont

15:22:44 1 Green Building Solutions which is a green
15:22:46 2 building consultant.
15:22:50 3 I want to start off by talking about
15:22:54 4 our built environment, the way we design,
15:22:58 5 construct, and live in the buildings that are in
15:23:00 6 our society and start off by just some basic
15:23:06 7 statistics, Department of Energy statistics.
15:23:10 8 65 percent of our electricity is consumed by our
15:23:12 9 buildings, 36 overall ener -- 36 percent of our
15:23:16 10 overall energy use is consumed by buildings and
15:23:20 11 30 percent of greenhouse gas emissions is
15:23:24 12 produced by our buildings. So what I propose,
15:23:26 13 and as simple as it sounds, is changing the way
15:23:28 14 that we build and design these buildings to make
15:23:32 15 a more high performance, energy efficient
15:23:38 16 healthy building or, in fact, a green building.
15:23:42 17 Again, as I mentioned, I represent just
15:23:44 18 one chapter of the United States Green Building
15:23:48 19 Council. The USGBC is a nationally-based
15:23:52 20 organization, nonprofit organization,
15:23:54 21 headquartered in Washington, D.C., formed in the
15:23:56 22 early nineties and has over 70 local chapters
15:24:00 23 across the United States. It's the diverse
15:24:02 24 membership made up of over 14,000 member
15:24:04 25 companies including utility, architects,

engineers, contractors, et cetera.

The primary goal of the USGBC is to transform the market of the built environment and try to reduce the amount of energy, for one, that buildings consume. What the United States Green Building Council has done is develop a certification or a rating system called LEED, Leadership in Energy and Environmental Design, which is a holistic rating system that looks at everything from the piece of property a building sits on to the end user who is going to occupy the space and trying to reduce the costs of operating that space.

Again, LEED is a rating system. It looks at the site, the water use and conservation, the energy use and conservation, the materials used during construction, the indoor air quality. Taking all this into consideration, at the end of the day hopes to have a building that costs less to operate, which reduces the amount of energy that it uses, has better indoor air quality which is going to increase productivity.

Basically what the LEED rating system does and how it works, it sets a sustainable

15:25:36 1 standard for a design team and contractor and
15:25:38 2 owner to build, design and operate by and try to
15:25:44 3 encourage this team to go above those standards.
15:25:48 4 For instance, in energy use, the design team and
15:25:52 5 owner are encouraged to have energy models done
15:25:54 6 on the building to see what this type of
15:25:58 7 building, said building, would consume in the
15:26:00 8 efforts of energy and then try to design it to
15:26:04 9 reduce it. And the minimum standard is the
15:26:08 10 Ashrae 90.1 standard and trying to be better
15:26:12 11 than the Ashrae 90.1 standard by a minimum of 14
12 percent above that.
13 So, again, it's a rating system that
15:26:22 14 sets standards and allows architects and
15:26:24 15 engineers and the owner to choose. It's a
15:26:26 16 voluntary rating system that's made up of many
15:26:30 17 points, so there isn't a set point that you have
15:26:32 18 to get depending on the project, et cetera.
15:26:36 19 Presently in the United States there are over
15:26:38 20 1200 projects that are certified and there are
15:26:40 21 close to 10,000 that are registered to be
15:26:44 22 certified, which would be somewhere in the next
15:26:46 23 couple of years.
15:26:50 24 LEED addresses not only new
15:26:52 25 construction but also looks at the existing

buildings. It looks at smaller spaces like if you have a fit-out space, a retail space, or a corn shell that's going to be leased out to multiple tenants along with a rating system for homeowners and have in the development rating systems for neighborhood, communities, health care, schools, et cetera.

So that being said, I would like to thank you for this opportunity for allowing me to speak and I have provided you with a lot more information than I wanted to talk about today about LEED and what's being done across the United States with LEED. And I would like to welcome any opportunity both the Alabama Chapter and the USGBC could offer or to help in the education of LEED in sustainable design and construction. Thank you.

MR. FRANCIS: Thank you, Mr. Miller. Our next speaker will be Mr. Simmons.

MR. SIMMONS: Good afternoon. The Tennessee Valley Public Power Association represents the 159 power distributors in the Tennessee Valley who buy wholesale electric power from TVA and distribute it to nearly 9 million customers in the seven Southeastern

states. The power distributor community represented by TVPPA is a diverse group from several perspectives. For example, our largest member has more than 430,000 customers and our smallest has fewer than 900 customers.

In addition, there are wide disparities in the economic and operational characteristics of distributors and their customers across the 80,000 square miles of the TVA service territory. This is significant in the context of today's session. On the surface, energy efficiency and demand response may appear to be a relatively simple issue, but in reality it's a very complicated issue. The diversity of the power distributor community is a complicated factor to solving the energy efficiency and demand response challenge and obviously must receive serious attention in the planning and implementation of effective programs.

Energy efficiency includes conservation, which is using less energy, efficiency, using energy smarter, and peak shaving, which is voiding energy use when the demand is high and when the power is the most expensive or to purchase. In addressing energy

efficiency, all three of these components need to be addressed and that will require a complicated, coordinated and concise effort among TVA power distributors and the end-use customers of electricity. That's been mentioned several times here today.

We commend you, the TVA Board, for hosting today's listening session. TVA's commitment to energy efficiency is expressed and your 2007 strategic plan calls for aggressive steps in a time-compressed fashion. We understand the preliminary goal is to reduce TVA's peak demand by 1200 megawatts 2013 with more to come as new rates, technology, and consumer awareness programs are developed. This is a laudable, yet challenging goal. By gathering input from the various stakeholders in the Valley early on, you're helping to insure that plans for meeting such difficult mandates have a better chance of succeeding.

We also commend you for recognizing that peak load growth in the Valley cannot entirely be met by putting more steel on the ground. The price of production and new generation has increased significantly and we

face uncertain political, regulatory, and environmental issues. So in order to preserve low rates and reliability, we have to evaluate alternatives to simply building more generating plants.

The power distributor community understands this. Early on we answered TVA's call for assistance and have responded in a collaborative way. Last November an energy efficiency subcommittee was appointed to serve as the primary initial interface with TVA and each representative on this committee brings diverse experiences to the group, which is under the direction of our energy services and marketing committee, which is a standing committee of or board of directors. This subcommittee has held numerous meetings with TVA in recent months and we now have a better understanding of the magnitude of the challenge that energy efficiency and demand response presents.

In an effort to reach out to all of our power distributors, this committee is hosting a meeting later this week in which TVA will receive input from all of our interested power

15:31:00 1 distributors. That meeting also promises to be
15:31:02 2 a significant milestone. While most of our
3 power distributors are aware that energy
15:31:06 4 efficiency and demand response discussions are
15:31:08 5 underway, there are obviously varying levels of
15:31:10 6 understanding about how the proposed goals will
15:31:12 7 be met and how individual utility operations can
15:31:14 8 play a part of achieving those goals.
15:31:16 9 In other words, at this point there are
15:31:18 10 more questions than answers. So during the
15:31:20 11 remainder of my time today, I want to briefly
15:31:24 12 review with you a few basic concepts which we
15:31:24 13 think are important and which we hope will
15:31:26 14 receive due consideration.
15:31:28 15 First we belief that fundamentally we
15:31:32 16 have an ongoing responsibility to promote the
15:31:32 17 prudent and wise use of electricity regardless
15:31:36 18 of whether a formal program is adopted and
15:31:38 19 implemented. We support energy efficiency as
15:31:40 20 part of an overall focus on the wise use of
15:31:42 21 resources for the benefit of end users and,
15:31:44 22 needless to say, adopted programs should be
15:31:46 23 real, attainable and measurable. By that we
15:31:50 24 mean that energy efficiency programs should make
15:31:50 25 sense and also withstand an economic test.

15:31:54 1 The distance between what looks good on
15:31:56 2 paper and what actually works can sometimes be
15:31:58 3 great. Even though we are facing time
4 constraints in developing and implementing
15:32:02 5 energy efficiency programs, we urge TVA to
15:32:04 6 practice the appropriate due diligence. In
15:32:08 7 other words, we need to get it right.
15:32:10 8 Secondly, as mentioned several times
15:32:12 9 today, we will succeed only if there is a
15:32:14 10 coordinated effort between TVA, power
15:32:16 11 distributors, and end-use customers. We must
15:32:20 12 recognize that the end-use customer will play a
15:32:24 13 critical role in the success of plan or programs
15:32:24 14 that we develop. It must be clear to them that
15:32:26 15 it is in their individual best interest and just
15:32:28 16 as important in our collective best interest to
15:32:32 17 modify behaviors related to energy consumption.
15:32:34 18 Clearly understanding and communicating
15:32:36 19 that message will require a lot of work by TVA,
15:32:38 20 the power distributors, and other stakeholder
15:32:40 21 group who are represented here today. Just how
15:32:44 22 we accomplish this difficult task is obviously
15:32:44 23 yet to be determined. But it will require a
15:32:46 24 well-developed and well-managed outreach program
15:32:50 25 to consumers.

This may be the most difficult task that we face. Educating consumers about the efficient use of electricity, which they usually take for granted until there's an outage and for which they pay for after it's consumed, is daunting, and to date there's been little incentive for consumers to alter their usage patterns. A consistent message and a coordinated communications and education is essential.

Third, as mentioned earlier, power distributors across the Valley have many common traits, but there are also notable differences. A one size fits all approach may not necessarily work. The needs are different from area to area. Our members serve metro areas, urban areas, suburban areas and rural areas. The demographics and the socioeconomic diversity of the customers can vary widely across those areas and the mix of residential, commercial, and industrial customers served by an individual power distributor can also have a significant impact on each distributor's load factor.

As you know, load factor is the ratio of a distributor's average load to its peak load

and can be an indicator of the ability of that distributor or its customers to respond to specific load management programs to a greater or lesser extent than others. For example, a distributor with a high load factor who may have a large concentration of industrial load may be able to contribute to improvements in energy efficiency but may have a difficult time in shifting energy to off peak periods because of the round-the-clock nature of its large industrial load.

Conversely, a distributor with a high percentage of residential and commercial loads will have a, quote, peakier load, and a lower load factor. This distributor may be able to convince its customers to use energy more wisely during periods of peak demand but may have a difficult time in reducing overall energy consumption.

As we collaboratively plan and implement energy efficiency and demand response programs, attention needs to be placed not only on our common threads but also on the things that make distributors unique in the various regions of our services territory. It makes

15:34:42 1 sense to build upon these regional diversities.
15:34:44 2 And, finally, we must insure that
15:34:46 3 wholesale power rates continue to support the
15:34:48 4 low cost reliable electricity model we've had
15:34:50 5 for 75 years in the Tennessee Valley. TVA
15:34:54 6 distributors spend roughly 75 to 85 cents of
15:34:58 7 every dollar collected from their purchasers to
15:35:00 8 purchase wholesale power from TVA. That leaves
15:35:02 9 a very small margin to operate and maintain
15:35:04 10 their distribution systems and to constantly
15:35:08 11 upgrade their systems to meet the continuing
15:35:08 12 reliability requirements of the customers.
15:35:10 13 There's a fine line between the
15:35:12 14 benefits of energy efficiency and demand
15:35:14 15 response and the resultant reduction in revenues
15:35:18 16 that power distributors may experience when such
15:35:18 17 programs are embraced by customers. Enactment
15:35:22 18 of any program must not detract from a
19 distributor's bottom line, but instead should
20 compliment it. To that end, the challenge for
15:35:30 21 TVA and TVPPA will be to collectively design
15:35:32 22 wholesale rate structures to encourage the
23 appropriate use of energy and capacity resources
24 while insuring that reliability and cost
25 effective rates are maintained.

A new wholesale rate structure may not only send appropriate price signals that can change the way electricity is used, but it may encourage distributors to implement and integrate more sophisticated metering and data acquisition devices into their current SCADA systems.

We are in the initial steps of gathering information from our members on levels of interest in automated meter infrastructure technologies and how best to respond to each member's desires to research and solve and used this technology. Initial responses from our members show wide diversity in the interest level of such systems, ranging from little or no plans to install such systems all the way to installing individual fiberoptics-based communication links to every customer. As we jointly develop energy efficiency and demand response programs and the rate structures to support them, we must accept, once again, that one size fits all approach to technology implementation will likely be difficult to achieve across the Valley.

Power distributors today are involved

in issues that were certainly unforeseen just a few years ago. Their willingness to step up to the challenges of energy efficiency and demand response and develop innovative, sound principled solutions speaks highly of their understanding, their commitment, and their vision. We look forward to collaboratively working with TVA to develop meaningful and effective energy efficiency and demand programs that will serve as a model for public power nationwide. Thank you very much.

MR. FRANCIS: Thank you, Mr. Simmons. And our final panelist of the day will be Mr. Van Mol.

MR. VAN MOL: Thank you for the opportunity to be here today on behalf of the Tennessee Valley Industrial Committee and we appreciate each of you taking the time to hear these very good ideas that have been presented this afternoon.

First a word about our organization. TBIC is composed of 33 different companies at about 50 locations throughout the Valley and all of these share the characteristic of purchasing electricity directly from TVA in at least one of

these locations. Many of the companies are well known because the company name is the name of an equally famous brand name such as Alcoa or Dupont or Weyerhaeuser. Others are less well known to the general public but manufacture basic materials and ingredients that are used either in or on all kinds of consumer products from toothpaste to tires, from paint to polymers, and from automobiles to the paper for local newspapers throughout the Tennessee Valley.

I guess the entire direct served industrial class of TVA customers, and this includes the members of TVIC plus a few others, used approximately 17 percent of the electricity TVA sold during last fiscal year. For that energy, these customers, a relatively few customers, paid more than $1.2 billion and that's up about 150 million for about the same amount of electricity the prior year.

With the announced 7 percent base rate increase scheduled to go into effect in April plus the rapid escalation and the fuel cost adjustment, both the FCA that we've experienced thus far in the forecast, it looks like in 2008

these customers are in for a huge increase. I did go outside and look at the rain and it was welcome.

Prospect of a large percentage increase in two years of a major product component with no assurance of being able to raise prices to cover it is certainly not a pleasant prospect for the industrial sector, as this Board and management is well aware. So it's more than apparent that industrial energy efficiency and demand response are not just kinder to the environment and good examples of corporate social responsibility. They can have a tremendous economic impact, as well.

When it comes to energy efficiency and demand response, I would assert that TVIC members are definitely green, only in this case the green represents good energy resource stewardship and it represents the green of an awful lot of money. Our view is that energy efficiency and demand response programs ought to be viewed as separate issues and separate programs but obviously taken together add up to good mutually beneficial results for both the customers and the utility.

15:39:58 1 The purposes of our comments, we would
15:40:02 2 define energy efficiency as using only the
15:40:06 3 amount of energy that's absolutely necessary to
15:40:06 4 get the industrial job done and then getting the
15:40:10 5 most extra benefit possible out of that same
15:40:12 6 amount of energy. Demand response would be
15:40:14 7 described for our purposes as being noted as
15:40:18 8 managing demand so as to make the best, most
15:40:22 9 efficient use of dollars and resources. And
15:40:24 10 obviously demand response is especially
15:40:28 11 important when TVA is short of generation
15:40:30 12 resources and when higher than necessary peaks
15:40:34 13 force TVA to run its most expensive generators
15:40:38 14 and also to purchase power from outside the
15:40:42 15 Tennessee Valley at times when prices are the
15:40:44 16 most expensive.
15:40:44 17 Energy efficiency in the industrial
15:40:48 18 setting is taken extremely seriously in the
15:40:50 19 direct serve group because this group has a
15:40:52 20 disproportionately high percentage of overall
15:40:54 21 production costs tied up in electricity and
15:40:58 22 other forms of energy. In some cases
15:41:00 23 electricity is the raw material for production
15:41:04 24 and amounts to more than half of the product
15:41:06 25 cost.

15:41:08 1 Mr. Chairman, I've listed some examples
15:41:10 2 of various measures that our group is
15:41:16 3 undertaking in the prepared remarks, but for
15:41:18 4 purposes of summarizing, I'll just say that most
15:41:22 5 industrial customers use the raw energy they buy
15:41:24 6 in the form of electricity, coal, or natural gas
15:41:28 7 numerous times before they are through with it.
15:41:32 8 The bottom line for industry is that
15:41:34 9 energy efficiency is an integral part of the
15:41:38 10 bottom line. Industry will continue to make
15:41:42 11 significant investments for further improvements
15:41:44 12 but there is a limit. While the energy
15:41:48 13 efficiency investment payback is quicker when
15:41:50 14 prices of electricity are high like today, TVA
15:41:52 15 must maintain a competitive industrial
15:41:54 16 electricity pricing or there's no need for
15:41:58 17 efficiency because the production and jobs
15:42:00 18 simply go away to a sister plant in another part
15:42:04 19 of the country or off shore.
15:42:06 20 Although there are plenty of financial
15:42:08 21 and other incentives for energy efficiency, TVA
15:42:12 22 might consider as part of its strategy an
15:42:14 23 Internet-based voluntary system of sharing best
15:42:18 24 practices among industrial energy users in the
15:42:22 25 Tennessee Valley. That way those companies that

were willing to share their expertise could do so with smaller industries that might not have the staff or budget to sort of milk every BTU out of their energy consumption.

Energy Star has been mentioned as a platform that may have some prospect. I'm not familiar with what they have that may be Internet based. This is certainly more the province of engineers than I am. But you might take a look at that idea as a way to sort of spread the word among industrial customers.

In the area of demand response, TVA and the industrial customers, both direct and those served by Jack's organization, the distributors, already had a pretty substantial peak shaving program in effect through interruptible contracts and price responsive loads. In the case of interruptible power, the customer gets a slightly lower price in exchange for the potential of being interrupted and price responsive customers have a product that allows them to self interrupt production when prices are the highest.

Just a quick summary of that for the benefits primarily of the audience since the TVA

15:43:38 1 folks know this for sure. There are 230
15:43:40 2 customers who have contracted for up to
15:43:42 3 2770 megawatts of interruption on 5 minutes'
15:43:46 4 notice, there are 55 customers who have
15:43:50 5 contracts to interrupt their power production by
15:43:54 6 1300 megawatts, the equivalent of a nuclear
15:43:58 7 unit, on 60 minutes' notice from TVA, 24
15:44:00 8 customers have contracted for 350 megawatts, the
15:44:04 9 size of a pretty good coal unit, that may be
15:44:06 10 interrupted on either 4 or 24 hours' notice.
15:44:10 11 And then there are 116 TVA end distributor
15:44:14 12 customers on what is called market day products,
15:44:18 13 so in exchange for a small credit on their
15:44:20 14 bills, these customers are subject to TVA
15:44:22 15 calling a, quote, market day, when prices to TVA
15:44:26 16 for purchase power are the highest. If the
15:44:28 17 customer chooses to run through any of these 12
15:44:32 18 days under the contract, the company has to pay
15:44:34 19 market prices for the electricity as opposed to
15:44:38 20 TVA's published rates and most of them have
15:44:40 21 designed their operations so that they can get
15:44:42 22 off and not pay these rates.
15:44:46 23 The primary beneficiaries of energy
15:44:48 24 efficiency could be considered to be the
15:44:52 25 individual customer and the environment, in

other words, less energy used, less cost to the customer and less stress on the environment. But there's no question the entire TVA power system and all of its customers benefit from interruptible power arrangements to industry. These contracts and subsequent interruptions decrease the amount of electricity TVA has to generate or purchase at peak times when costs are the highest and prices on the open market are the highest. It means lower cost of fuel and purchase power which means lower fuel cost adjustment prices than would otherwise be the case. And, of course, the FCA prices are paid on all kilowatt hours used by all customers, not just those during the peak hours.

One policy matter that I'll bring up, sort of a characteristic in the current rate structure which doesn't necessarily encourage demand response or efficiency and which we believe TVA has plans to rectify by October of this -- of next year. That's the so-called end-use wholesale rate in which distributors pay the same amount for their electricity no matter what time of the day it's used. And we would encourage that effort to move forward as quickly

as possible so, that as Jack mentioned, the proper price signals can be given for paying more for electricity when it costs more and less when it costs less.

Rather than go any further, since my time is about up, I'll just say thanks again for the opportunity and look forward to your questions.

MR. FRANCIS: Thank you. At this time it's time for the Board's questions.

MR. BOTTORFF: Mr. Boardman, you talked about simple programs being implemented in other markets for demand response. Could you give us an example of some of those that you think were simple and effective that we might --

MR. BOARDMAN: Well, I'd like to give two examples. One is a residential program and one is a commercial industrial program. The residential program is done -- has been done very successfully in California. And one of our members, a company named Converge, does the entire program. They go out and market smart thermostats to homeowners. And when they get enough of these smart thermostats installed, they have control over a pretty good chunk of

load and they can go into air conditioning cycling at almost an instantaneous notice -- not instantaneous, but five minutes' notice and they can actually -- you can actually watch the demand go down when they turn the switch on several thousands of these thermostats.

It was easy from the utilities' point of view. The curtailment service provider, Converge, has learned how to market these things, they've learned how to install them, they've learned how to deal with customers, and the customer satisfaction is very high, those people that have had the smart thermostats installed.

The money for this comes from capacity payments from the California independent system operator. Just like if you had somebody that had a peak power plant that you would need during the times of your peak, you wouldn't just pay him for the electricity you get at the peak time, but you'd pay him for a standby price for having that electricity available to you when you need it.

The other program that I think makes a lot of sense and is done -- was done very

heavily in Southwest Connecticut, which was a very electricity capacity short area. And this is an area of affluent suburbs of New York City and these people absolutely did not want transmission lines built in their backyard. So there was no way to get power into the little load pocket there in Southwest Connecticut. So the New England ISO put out requests for proposals for how to reduce demand in that area and several of our members responded and were given the contracts to do that.

But the one that I'm thinking of in particular is a company named Internoc who basically goes out to commercial industrial people that have backup generators and they offer a program where they take over the operation of the generator. The generator still belongs to the industrial company, but Internoc does all the maintenance, supplies all the fuel, runs the monthly tests to make sure it works and when the ISO needs the power, they contact Internoc and Internoc, through their operating center, turns on those generators and, boom, they have instant power available for the grid.

Here again, the customers get paid a

demand charge for doing this. They don't have to worry about the maintenance of their generators, they don't have to worry about the fuel costs for the generators because that's all built in. And the customer satisfaction is very high with that, as well. So those are two good examples, but there's a lot of programs out there that are available, but those are the two that came to mind quickly.

MR. SANSOM: Would you expound on the aggregators a little bit, how you do that?

MR. BOARDMAN: On what?

MR. SANSOM: The aggregators.

MR. BOARDMAN: Aggregators?

MR. SANSOM: Yeah. We actually have about five companies that belong to Peak Load Management Alliance Center in that business. They contract either with the utility or with an independent system operator. In this case, I think TVA is probably comparable to an independent system operator. I know you have a few direct customers, but mainly your distributors are your primary customers, so you'd be in the position of the ISO.

They contract to supply X number of

15:51:14 1 megawatts that are curtailable when you need the
15:51:18 2 curtailment and the price you pay depends on the
15:51:22 3 response time that you want. If you want a
15:51:24 4 5-minute response, you probably would pay a
15:51:26 5 little more than if you wanted a 24-hour
15:51:28 6 response. These aggregators then, after they
15:51:32 7 sign the contract, they go out and they actually
15:51:34 8 do the marketing. They've got their marketing
15:51:36 9 materials all prepared and they customize it for
15:51:38 10 the particular customer set that they're going
15:51:42 11 after.
15:51:42 12 And I was glad to hear my companion up
15:51:48 13 here on the panel talk about customers being so
15:51:50 14 different depending on which distributor -- or
15:51:52 15 the distribution companies being so different
15:51:56 16 depending on their customer mix because these
15:51:58 17 programs can be tailored to specific customers.
15:52:02 18 And the customers can be -- as I talked about
15:52:06 19 the smart thermostat program, they can be
15:52:08 20 residential customers, they can be industrial
15:52:10 21 customers, they can be commercial building
15:52:12 22 customers.
15:52:12 23 And one of the things that our members
15:52:16 24 have found is they offered somebody some money
15:52:20 25 on a capacity payment to enable you to either

curtail their use or turn on their generator or something that helps the system operator and that develops a pretty close relationship with that customer. And beyond that, they had been very successful in promoting energy efficient retrofits in homes and in industrial and commercial buildings after they get their foot in the door with the demand response. So it's got a lot more benefits in the long-term other than just reducing the demand.

MR. BOTTORFF: Don or Howard. Jack, how well known throughout your membership are the results of the time and use meter programs? Is that pretty well discussed in --

MR. SIMMONS: I think, you know, we have, Denny, out of 159 distributors, we have a lot who are really engaged in everything that goes on between TVA and our organization at TVPPA. We have others that don't have time for that. And it's not their own fault, it's just they don't have time for that. So I mentioned that communication and education is going to be an extremely difficult thing to do and that not only applies to the end-use consumer who will ultimately have to implement a lot of these

15:53:44 1 programs, but we have that same issue that we're
15:53:46 2 dealing with with the distributor community
15:53:48 3 itself.
15:53:48 4 And I mentioned that we have a meeting
15:53:50 5 this Friday with Ken Breeden and Dr. Hoagland to
15:53:56 6 kick off these efforts because we've been
15:53:56 7 working with you on putting a strategic plan
15:54:00 8 together on how to deal with this particular
15:54:00 9 issue. But Friday is our kickoff. We've
15:54:04 10 invited every distributor in the Valley to
15:54:04 11 attend that meeting to get them up to at least
15:54:06 12 a working knowledge of what is going on. So to
15:54:10 13 answer your question specifically, I think
15:54:12 14 there's a knowledge out there that this has to
15:54:12 15 happen, but our folks have not engaged yet and
15:54:16 16 we're starting that engagement process now.
15:54:22 17 MR. SANSOM: Jack, are there -- how
15:54:24 18 many of these smart meters are out there? I
15:54:26 19 mean in your -- and then I've got another
15:54:28 20 question behind that.
15:54:28 21 MR. SIMMONS: Okay. I don't know the
15:54:30 22 exact number. I do know that we have a --
15:54:32 23 there's a survey that's just being completed
15:54:34 24 where we've asked all of our membership what
15:54:36 25 they have. Because, you know, there's several

technologies out there and folks have put those meters in for different reasons. You know, obviously, in the previous years, you put those meters in to keep from having to pay a meter reader and you go out and you have a way to get those readings more quickly and more economically.

As you know, there are a lot systems. Especially in Tennessee, some of the municipal systems have gotten into providing other telecommunication services such as telephone and TV and Internet services and there's been a need to not only put smart meters in, which is AMR, automatic meter reading, but also AMI, which is the infrastructure that allows you to converse two ways between that customer and the utility. So, there again, you've got folks who I think will go kicking and screaming into the future and say, I'll never put smart meters in, and you've got others who have already embraced it.

For instance, the chairman of our board, Eston Glover, at Pennyrile, Kentucky, you know, he's one tenth the size of Memphis and he has like 46,000 meters and he's put those on every house. And so you've got some of the

15:55:38 1 larger systems haven't done it and Pulaski,
15:55:42 2 Tennessee, is a small one that's done it. So it
15:55:42 3 varies depending on what the motivation factors
15:55:44 4 are, what the education level and the interest
15:55:46 5 level of those individual board of directors
15:55:48 6 are.
15:55:50 7 So, again, one of the things we want to
15:55:54 8 work on, and we've commissioned a new committee,
15:55:54 9 our TVPPA Board at our December meeting, is what
15:55:58 10 I'll call a communication infrastructure
15:56:02 11 committee which will likely end up being a
15:56:04 12 standing committee of TVPPA's Board that will
15:56:06 13 allow us to begin to put a platform together for
15:56:08 14 all the distributors in the Valley who have an
15:56:10 15 interest, whether they know it or not, to put
15:56:12 16 some uniformity in how we put that communication
15:56:14 17 infrastructure in place. Because regardless if
15:56:20 18 Pennyrile has put in a certain brand of meters
15:56:22 19 and Chattanooga has put in another brand of
15:56:24 20 meters, ultimately we want that data to be able
15:56:28 21 to be collected and be consistent so that we can
15:56:30 22 use that to implement a lot of these programs
23 that we're working on.
15:56:34 24 MR. SANSOM: Mr. Boardman talked about
15:56:36 25 the thermostats. Don't somebody have -- are we

using -- is somebody trying this thing with hot water heaters? I thought somebody did. Is that right?

MR. THRAILKILL: Did your aggregators use hot water heaters?

MR. BOARDMAN: Excuse me. While Converge, who is the company that comes to mind when I think of these residential things, while they are in there selling the smart thermostat, they can also sell a switch on the hot water tank. They can do a lot of things at the initial sale and certainly as a follow-up to the initial sale.

MR. BOTTORFF: John, my sense is that in terms of direct serve -- and you need to correct me if my sense is wrong and it often times is. But my sense is that with direct serve customers, so many of them have availed themselves to the interruptible product that the management of sort of peak load demand is probably pretty efficient within the direct -- direct serve customers. And so conservation is more where the opportunity is there because there's not much low hanging fruit left on it. Is that correct or not?

15:57:54 1 MR. VAN MOL: That's probably a correct
15:57:56 2 assumption. The difficulty as we move into this
15:58:00 3 is that many of them -- certainly not all -- but
15:58:04 4 most of them already are sort of milking their
15:58:08 5 energy for just about all it's worth with, you
15:58:12 6 know, capturing waste heat and using it to dry
15:58:14 7 material before it goes into a process and then
15:58:18 8 capturing the waste from that and using it again
15:58:20 9 and again and again. So I guess while there are
15:58:24 10 certainly plenty of opportunities out there for
15:58:26 11 conservation, and I would encourage all of our
15:58:30 12 folks to pursue them, I think there's a certain
15:58:34 13 balance that needs to be struck as we go forward
15:58:36 14 on this because I don't think we can cut our way
15:58:38 15 to prosperity and neither can the TVA power
15:58:44 16 system.
15:58:46 17 MR. SANSOM: Right.
15:58:48 18 MR. VAN MOL: So we've got to remember
15:58:50 19 that there are hundreds of thousands of jobs and
15:58:52 20 families out there who are relying on sometimes
15:58:54 21 very energy intensive industries to make a
15:58:58 22 living and I think the last thing we want to do
15:59:00 23 is unilaterally impose standards on them that
15:59:04 24 they can't meet that cost jobs and families.
15:59:08 25 And I don't think that's the intent, but I do

15:59:12 1 think there needs to be some balance and we need
15:59:14 2 to make sure about that. Most of the
15:59:16 3 investments that have been mentioned today do
15:59:18 4 pay off and pay off in a relatively short period
15:59:20 5 of time.
15:59:22 6 MR. BOTTORFF: You commented about
15:59:24 7 using the Internet to share ideas. If in the
15:59:30 8 industrial sector the direct serve customers
15:59:32 9 there's been a -- you have -- they have milked
15:59:38 10 or are doing a good job on energy efficiency, et
15:59:42 11 cetera, how can some of those practices then be
15:59:46 12 shared maybe with some of the commercial
15:59:48 13 customers that are served through the
15:59:50 14 distributors? Is there -- Jack, between you and
15:59:54 15 John someplace, is there something there that
15:59:56 16 might have some applicability?
16:00:00 17 MR. SIMMONS: Well, John does represent
16:00:00 18 the direct serve customers and then each of our
16:00:04 19 distributors is the communicational link to
16:00:06 20 their distributor served customers. There is an
16:00:08 21 organization in the Valley called Associated
16:00:10 22 Valley Industries that we have a very good
16:00:12 23 dialogue with. In fact, I think AVI is also a
24 member --
16:00:18 25 MR. VAN MOL: They're a member of our

group, as well, so.

MR. SIMMONS: I attend their quarterly meetings. I'm on the hot seat several times there and I'm on the good seat sometimes there. But we try to keep that communication link open, as I know John does with that same group.

MR. VAN MOL: And I think there's some pretty easy and obvious opportunities. Everybody has been into the grocery store or drug store on a hot August afternoon and nearly freeze to death and, you know, it just doesn't need to be that way.

MR. BOTTORFF: I got you.

MR. SIMMONS: And the same way is true with, I mean, we have homes in the Valley -- back to this education and communication thing, where you'll find people with their -- in the winter time their thermostats turned up to 80 or 90 degrees and the doors and windows are open. You know, they don't understand the connection between that energy usage and the power bill.

MR. BOTTORFF: Gil, have we used our time?

MR. FRANCIS: Yes, sir.

MR. BOTTORFF: Anybody have a burning

16:01:06 question here at the end? Gentlemen, once
16:01:08 again, thank you very much.

MR. KILGORE: Very productive session. We've had great panels.

MR. BOTTORFF: And now, Gil, we have some public comments?

16:01:18 MR. FRANCIS: Yes, we do. We have 16
16:01:18 people that have registered. And let me just
16:01:20 say thank you, again, to all of our panelists
16:01:22 today for their remarks. We have some folks in
16:01:24 the audience who have registered. I have two
16:01:30 more just added. And we'll call them and ask
16:01:32 them to come forward to the microphone out
16:01:34 front. We've asked folks to limit their
16:01:36 comments to 3 minutes. We'll take any written
16:01:38 comments you have of any length. We'll collect
16:01:42 those from you today. You can leave them out at
16:01:44 the registration desk.

16:01:44 But I've got a couple of folks that
16:01:46 registered on line who did not check in, so let
16:01:56 me see if they're here. Glenn Forslin. John
16:01:58 Noel? Following John, is Stephen Levy here?
16:02:20 Keith Richardson.

16:02:46 MR. THRAILKILL: Gil, while John comes
16:02:48 to speak, why don't you ask everybody that is

registered to go over on that side so you can come to the microphone and be prepared. That way Gil will know -- he'll look in that direction. He won't look in another direction. If you're not over there, he'll probably wind up skipping you. John, do you want to come up to the center mic?

MR. FRANCIS: The next speaker will be Bruce Glanville.

MR. NOEL: Thank you very much for letting me appear before you. I'm John Noel. I serve on the Board of the Climate Institute in Washington, D.C. I'm the current president of the Southern Alliance for Clean Energy. All the property that's in my name is under the Green Power Switch 100 percent and I drive a car that I have for eight and a half years that averages 61 miles to the gallon.

MR. SANSOM: It must have pedals.

MR. NOEL: It's close. It's close. I wanted -- the TVA Board and its leadership and TVPPA and others are poised, I think, on the edge of an opportunity to set the bar on how energy is produced and used in this country. We waste about 60 percent of this energy and some

of it's easy to recapture and some is not. It's going to require a wise application of knowledge and technology.

Our current fossil fuel energy production is burdened by cost, safety, health, environmental forces such as water, and it has set in motion trends that are threatening our quality of life. I believe that we have sort of a new epic in our history right now. Much as the strata of the Earth's geology has been measured by geologists for years, we now have what I consider to be a global stratospheric signature which is changing the dynamics of weather and warming the planet. And it's incumbent that we begin to exercise some expertise and haste in how we approach this difficulty.

Fossil fuels must be diminished as rapidly as possible and it seems to me that energy conservation is the fastest and the most cost efficient way to do this. And I would urge the Board to set its goals high and to do this with as fast of an approach as possible. I think what Steve Smith had outlined in his previous presentation is a good outline to

pursue and I thank you for your time. And you have a big challenge and in any way in the world that I can help or anything else that we can do, please let me know.

MR. FRANCIS: Bruce Glanville. He'll be followed by David Reister.

MR. GLANVILLE: Hello. This is a great opportunity and I'm really glad you guys are doing this. I'm a HERS rater, I have been for a little less than a year, and I want to share with you my business philosophy. It's a short statement and much of this you've already heard.

But in any case, our Valley is experiencing unprecedented growth in energy use while suffering from a regrettably high level of respiratory disease. Put another way, power demand is breaking records while we're plagued with asthma and allergies.

HVAC duct leakage is a large part of our household energy use. Those same ineffective ventilation systems blow allergens and mold into our homes. Porous ducting, leaky buildings and incorrectly sized HVAC systems contribute to health problems and energy waste while the cost of health care and power

16:06:46 1 generation continue to rise.
16:06:48 2 New sources of energy are expensive and
16:06:52 3 slow to come on line, often delayed by local
16:06:54 4 politics and the NIMBY effect. Building code
16:06:56 5 revisions are bureaucratically burdened as well
16:07:00 6 as hindered by the resistance of the building
16:07:02 7 industry to change. In contrast to these
16:07:06 8 solutions, mining household energy efficiency,
16:07:08 9 utilizing existing building science is a
16:07:10 10 resource that performs immediately one house at
16:07:12 11 a time.
16:07:14 12 Because our general public has not to
16:07:16 13 date shown the ability or desire to
16:07:20 14 significantly reduce power consumption by
16:07:22 15 itself, there's no better time for TVA to take
16:07:26 16 the lead in energy conservation. A push from
16:07:28 17 the utility through incentive programs, bank
16:07:32 18 financing through energy improvement and energy
16:07:34 19 efficiency mortgages, working in conjunction
16:07:36 20 with an honest media campaign will motivate
16:07:42 21 homeowners to participate. Many other areas of
16:07:44 22 this country have succeeded in a similar plan.
16:07:48 23 A significant benefit of more efficient
16:07:50 24 homes as documented by the EPA, U. S. Green
16:07:54 25 Building Council, is improved indoor air quality

16:07:56 1 followed by reduction in mold and allergy driven
16:08:00 2 disease. The fact is, an efficient tight home
3 with filtered mechanical ventilation reduces the
16:08:06 4 occurrence of allergies, asthma and other
16:08:08 5 respiratory ailments. The value of this
16:08:10 6 improved health, while hard to quantify, will be
16:08:14 7 seen in improved productivity through our
16:08:16 8 region's schools and work force.
16:08:18 9 We can achieve a predictable reduction
16:08:20 10 of home energy use along with the priceless
16:08:24 11 goodwill generating -- generated, excuse me, by
16:08:26 12 a healthy family with lower power bills. Thank
16:08:30 13 you very much.
14 MR. FRANCIS: David Reister. He'll be
16:08:34 15 followed by Jim Davis.
16:08:40 16 MR. REISTER: My name is David Reister
16:08:42 17 and I am active in the Sierra Club at three
16:08:46 18 levels, the local, state, and national. I was
16:08:48 19 pleased when the Board increased the emphasis on
16:08:52 20 energy efficiency in the strategic plan and I
16:08:56 21 was pleased when the Board set the goal of 1200
16:09:02 22 megawatts of demand reduction by 2012 and I was
23 pleased when the Board created the position of
16:09:08 24 Vice President of Demand and appointed a bright,
16:09:12 25 young Ph.D.

I have corresponded and met with Joe Hoagland many times in the last five months. Initially I had the impression that I would see a plan in January. The East TVA Tower is full of engineers working on Watts Bar II. Where is the building full of people working on demand? Suppose that TVA will need to invest $3 billion to reach the goal and they are spending 20 million in 2008. If they invest 100 million next year and double the investment each year, the total would be 1.5 billion. So in order to reach 3 billion, they need to invest 200 million next year and double that investment every year. I'm not seeing that there's any indication that we're headed on that path. When we met with Joe on February 1st, he gave us a list of questions to answer. These questions gave no indication that he's developing a detailed plan to invest $3 billion.

There are two different ways that the 1200-megawatt goal could be reached, the market and a planned program. We used the market to reduce energy demand in the country from 1973 to 1985. TVA could achieve its rates or move in the direction at least by raising its -- could

16:10:44 1 achieve its goal by raising its rate to
16:10:46 2 California or East Coast levels. But raising
16:10:52 3 rates would work well for large customers but
16:10:54 4 would be hard on small customers.
16:10:56 5 For small customers, TVA creates --
16:10:58 6 needs to create programs that guarantee a small
16:11:02 7 decrease in their customers' electric bill if
16:11:06 8 the company's customers participate in a demand
16:11:10 9 reduction program, and TVA would -- could have
16:11:16 10 some rate increases to pay for the program. I
16:11:20 11 think lots of details can be worked out and I
16:11:22 12 had some suggestions in Joe's questionnaire.
16:11:26 13 But I think basically what I'm nervous about is
16:11:28 14 I'm not seeing a serious program in place that
16:11:34 15 would achieve the goal.
16:11:38 16 MR. FRANCIS: Jim Davis. He's going to
17 be followed by Michael Crosby.
16:11:46 18 MR. DAVIS: Hello. My name is Jim
16:11:48 19 Davis. I work for Tetra Tech in Oak Ridge.
16:11:50 20 Sorry about my scratchy throat. We are a
21 nationwide environmental and engineering
16:11:56 22 consulting firm. We have about 8,000 employees
16:11:58 23 worldwide. I want to encourage you in your
16:12:02 24 energy efficiency and demand programs, encourage
16:12:04 25 you to set very aggressive goals in that.

I just wanted to share one experience from Tetra Tech's work to encourage you in how efficient and beneficial these programs can be. We do a lot of work for the U. S. Military. By the way, all four branches have made serious commitments to energy efficiency. And we have certified resource efficiency managers on military bases, full-time Tetra Tech employees but on the base full-time. And in many cases those people have resulted in a two-factor of investment on return. In other words, the cost to keep that person there for a year pays for itself two times over in energy savings. So there's a lot of room for improvement and work in this area. I just wanted to share that with you. We have about 70 of these people on military bases now, so it can be very effective in cutting energy use.

MR. FRANCIS: Michael Crosby who will be followed by Keith Richardson.

MR. CROSBY: Thank you. Mike Crosby. I'm president of BCAAT, Breathe Cleaner Air Action Team. It's a group of volunteers dedicated to nothing but improving air quality in Louden County and the surrounding areas.

16:13:28 1 I think everyone here knows that this
16:13:32 2 area of Tennessee is not meeting Federal
16:13:38 3 standards on ozone and on small particles.
16:13:42 4 Every new study that comes out is showing that
16:13:44 5 both ozone and particles have much more serious
16:13:48 6 health effects than had been realized in the
16:13:52 7 path. This is one of the reasons that a
16:13:56 8 tightening of the ozone standard is under
16:13:58 9 serious consideration right now by the EPA. I'm
16:14:02 10 sure everyone here knows full well that TVA's
16:14:06 11 coal fired power plants are the largest producer
16:14:10 12 of air pollutants in this state.
16:14:16 13 Therefore, you have our full support,
16:14:18 14 the environmental community, in terms of
16:14:22 15 generating savings by energy efficiency and
16:14:30 16 demand reduction. It's been stated by many many
16:14:32 17 people, it's the absolute green, no polluting
16:14:36 18 way to provide energy. So it's a wonderful
16:14:38 19 thing that you're embarking on and, as opposed
16:14:44 20 to many things that you do, I think you'll find
16:14:46 21 the full support of the environmental community
16:14:48 22 on this particular activity.
16:14:52 23 The second point I would like to make
16:14:54 24 is -- a number of people have stated it -- but I
16:14:58 25 think you need to put some strong management

16:15:02 1 incentive for your management of TVA to achieve
16:15:06 2 measurable goals and to kick this demand
16:15:12 3 reduction energy efficient way up there for the
16:15:16 4 TVA management bonuses. That's one of the ways
16:15:18 5 to get the results that will work.
16:15:20 6 Now, as far as another financial
16:15:24 7 incentive to help make this happen, it's been
16:15:26 8 suggested by a number of people, and I certainly
16:15:28 9 agree, that using your pricing, your pricing to
16:15:34 10 the utilities, your pricing to the direct users
16:15:38 11 in a way that creates the environment that
16:15:40 12 causes them to go to their customers to do the
16:15:44 13 right things to help you achieve this goal is
16:15:46 14 absolutely right on the money. You've got the
16:15:48 15 pricing power. Use it.
16:15:54 16 And the last thing, you're not going to
16:15:56 17 make this happen without the support of the
16:15:58 18 State of Tennessee. You had TDEC here saying
16:16:02 19 they're going to support it. You have the
16:16:04 20 governor saying he's interested in energy
16:16:06 21 efficiency. There's been a lot of good words
16:16:08 22 said. One of the areas that needs to be
16:16:10 23 addressed is the legislature. And I know you've
16:16:14 24 got lots of friends and lots of industrial
16:16:16 25 friends and utility people. You've got a lot of

16:16:18 1 sway in this state. And I would certainly
16:16:22 2 encourage you to try to work with the
16:16:26 3 legislature to try to get some of this stuff
16:16:28 4 implemented so that TDEC can do their job and
16:16:30 5 the executive branch can do their job. I think
16:16:32 6 it's been a great conference so far and thank
16:16:34 7 you for allowing me to speak.
16:16:36 8 MR. FRANCIS: Keith Richardson. He'll
16:16:38 9 be followed by Jon Rappaport.
16:16:44 10 MR. RICHARDSON: Good afternoon. I'm
16:16:44 11 Keith Richardson. I'm a resident of Knoxville,
16:16:48 12 Tennessee. And I remember the good days when
16:16:52 13 TVA was at the forefront of advancing passive
16:16:56 14 solar design to encourage conservation in the
16:17:00 15 way in which we heat our homes. Also, I'm a
16:17:04 16 veteran of that unfortunate period where you
16:17:04 17 turn on the TV and see an ad by TVA of some rube
16:17:10 18 reared back in his recliner with all the lights
16:17:12 19 going, the TV blaring and he's asleep using all
16:17:18 20 the energy he wanted to simply because he could
16:17:20 21 afford to do it. I'm glad to see the turn back
16:17:22 22 to the sensibility of conservation.
16:17:26 23 Kathy Lindquist, my friend, was a civil
16:17:32 24 engineer employed by TVA and in 2002 she
16:17:34 25 received TVA's Environmental Award for

Environmental Protection and Stewardship. I'm not here today to speak as the curmudgeon that I've become. I'm here today to speak for Kathy because she can't be here. She died before she reached the age of 45 to cancer. She was a Girl Scout leader and a leader of our youth at my church, Church of the Savior. And in her memory other women in the congregation have come together and are actually advancing legislation at the state level that is going to solve three problems, one of which I'd like to speak to today.

There are currently several surface coal mining sites in Tennessee that are practicing mountaintop removal which is sometimes called cross ridge mining. This practice which is rampant in Eastern Kentucky and Western Virginia removes as much as 1,000 feet of a mountain to get to the seam of coal inside. It destroys the hydrology of the watershed, it blights the view shed, it causes wells to go bad, it increases flooding, it causes disruption and displacement of communities due to blasting noise and dust and it decreases property values, not to mention the

damage that's done to our tourism industry and the potential for tourism.

I ask for your support for the Tennessee Scenic Vistas Protection Act, State Bill 3822, House Bill 3348 in Tennessee -- currently under consideration in the Tennessee State Legislature. If you want more information, you can go to our website which is www.tn.leaf, l-e-a-f, .org, or you can pick up the most recent issue of our local weekly Metropulse and read about the mountaintop revival. Thank you.

MR. FRANCIS: Jon Rappaport. He will be followed by John Knisley.

MR. RAPPAPORT: Hello. Thank you for letting me participate in your event today. It's been quite informative. My name is Jon Rappaport and I'm the Vice President of Broadband Energy Network, BEN for short. We are an energy automation and services company and we're dedicated to taking our 25 to 30 years of experience in the world of automation and control and applying that to many of the desperately needed problems, problems requiring address in the utility space.

16:20:12 1 You gentlemen represent what is
16:20:12 2 essentially the world's largest machine and I
16:20:14 3 would argue the most important machine which is
16:20:16 4 the utility industry and the utility grid in
16:20:20 5 general. It's kind of ironic that it's the last
16:20:24 6 major machine or last major industry to go
16:20:28 7 digital. And, of course, for those of you in
16:20:30 8 the audience, we tend to collectively call this
16:20:32 9 the smart grid. What an awesome responsibility
16:20:36 10 that you guys face in the decisions that you
16:20:38 11 make. These decisions will affect millions of
16:20:40 12 your customers today and generations to come.
16:20:46 13 I wanted to just offer a little bit of
16:20:50 14 introduction into my company and also just to
16:20:50 15 make a couple of short points for consideration
16:20:52 16 when you're looking at new technologies and/or
16:20:56 17 services. One is the transition that we're
16:20:58 18 making must address all legacy encumbrances that
16:21:02 19 are faced by essentially hundred year old
16:21:06 20 technology which is the current utility grid and
16:21:08 21 it must also embrace current and future
16:21:08 22 technologies, the kind of rapid, fast-paced
23 technologies that tend to come out of Silicon
24 Valley.
16:21:12 25 We must change from a one-way customer

dynamic and start to create participatory networks where all participants in the grid are essentially connected. We need to make sure that the grid is secure, that the applications and the services are extensible, that they're replicable, and that they leverage current and future standards. We must make sure that is a win-win for all stakeholders, in particular the utility, the customer, the community and the environment.

Given that the decisions that are made typically are very very long-lasting in this industry in particular, I'd like you to make sure that the technologies and the things that you look at are extracted -- in other words the results of those technologies are extracted from the technologies themselves, meaning that you have to make sure you do not paint yourself in a technical corner, thereby looking at technologies that are open to both addressing legacy standards, current and future standards.

Very simply -- and I will -- rather than try to summarize everything in a very brief period of time, I will provide you with some information. But very succinctly, Broadband

Energy Networks has two major components, a technology company that puts energy gateways which connect to old legacy and future technologies, technology and protocol agnostic communicate over all kinds of different communication layers to the network operation center which can deliver the kinds of programs everybody spoke of today and in doing so delivers a portal that's very effective for the energy company to operate those programs, services, and communicate with the end-use customers while at the same time, and perhaps the most important and major missing link here, is the low hanging fruit, as was pointed out, is taken.

To maximize the efficiency of this fifth fuel, I would argue that we need to bring all the other participants into the group, particularly the small businesses and all of our residential customers. To help to make sure that becomes a reality, what we do as a service is we run these managed services. We apply our technology into the home and also into the utility, thereby delivering the types of services from demand response and grid

monitoring and most importantly, though, tying in the customer and making sure the customer has the ability to set up and configure and simply enable their home and do it inexpensively, actively receive information and participate in the utility grid and also providing the tools for the utility to aggregate effectively all of that information bidirectionally to and from the customer.

We're launching networks in Tennessee, Texas, Virginia, and Pennsylvania. Did I mention Tennessee?

MR. FRANCIS: Sir, you're up.

MR. RAPPAPORT: I apologize for running over. I have left with you in front further information and I thank you for your time and I apologize for running a little bit long. Thank you.

MR. FRANCIS: John Knisley who will be followed by Doug Weiland.

MR. KNISLEY: Good afternoon. I'm John Knisley. I work for Hodge Associates. We are an architectural engineering firm here in Knoxville and I'm also a certified energy manager, I'm also a national board member of the

Energy Services Coalition and am involved in several of the other energy and environmental related organizations.

I'm speaking today a little bit from a different perspective because I'd like to talk a little bit about my customers who are also the customers of TVA and the customers of the TVPPA power suppliers. From their perspective, there are issues that I think the Board needs to address, specifically schools. I do a lot of business with schools and what I've found is that schools have a very difficult time dealing with specifically demand.

Demand in the schools -- most of the schools I represent is anywhere from 40 to 46 percent of their total electric bill. In Blount County, for instance, you have four separate utility companies serving the different schools systems for Blount County schools. They all have a different demand rate. It's very difficult for them to do their planning, their budgeting, et cetera, because of that.

I also find that of the $2.3 million they spent last year for electricity in Blount County, a little over a million dollars of that

was for demand. To me we've got three separate issues here. Number one, we've got the issue of conservation which certainly needs to be directed, two, we've also got the issue of the demand situation, and we've also got the issue of the environmental impact. And I think they need to be looked at separately and I think in your planning and in what you do, you need to figure out ways to be beneficial to the end user.

Most of the customers I represent are less than 5,000 kW in demand charges. Those are the areas that seem to be sort of left behind, but those are the people that are paying huge sums for demand. Also in your pricing and your schedule, it seems that the -- some of the areas that can least afford it are charged the highest demand charges. For instance, Morgan County Schools pays $14.64 per kW for demand. Compare that to some other schools that are paying less than $10 per kW for demand in some of the larger areas.

So I appreciate your time. This is just one area. There are thousands of areas that I think that you can work with. And,

16:27:08 1 incidentally, somebody had talked about the
16:27:10 2 smart metering. Echelon has a smart metering
16:27:16 3 system that has been put in by the utility
16:27:18 4 company in Birmingham. It was done under a
16:27:20 5 performance contract, so.
16:27:24 6 MR. FRANCIS: Doug Weiler -- Weiland.
16:27:26 7 He'll be followed by Tim Holt.
16:27:32 8 MR. WEILAND: It's been a long
16:27:32 9 afternoon and I'm not going to take a lot of
16:27:34 10 your time. You are to be commended for giving
16:27:38 11 three or four hours this afternoon to listen to
16:27:40 12 people and it's so important. I'm Douglas
16:27:44 13 Weiland and I represent the Association of
16:27:44 14 Tennessee Valley Governments. You've heard me
16:27:48 15 before.
16:27:48 16 Just for the record, I know you know
16:27:50 17 who I am, but ATVG was founded in 1981. It's a
16:27:54 18 501(c)(4) not-for-profit public corporation
16:27:58 19 representing the nearly 1,000 local governments,
16:28:02 20 cities and counties, in the TVA service delivery
16:28:06 21 area. There's three main things that the
16:28:08 22 association does. First of all, we champion the
16:28:10 23 original core mission of TVA, and number two, we
16:28:18 24 are on record of opposing any effort to
16:28:20 25 deregulate the electric utility distribution

system industry, and thirdly, and I think this is our most important, our ongoing priority is to help ensure that you're successful in continuing to deliver low cost electricity to the public and the governments that you serve, and as I heard Mr. Kilgore say, to keep the lights on.

I'd just like to give you some observations that I've heard today. As I was sitting there listening and making some notes on some of the speakers, for some reason a thought went back to me some 41 years ago as I had just finished college, was looking for my first job, and I was sitting in the office of the school superintendent in Clarksville, Tennessee, who offered me a job teaching. He was a wise old school man and he said, son, he said, there's one thing you've got to remember. He said, in education, everybody you deal with is an expert. Then he paused. And he said, they either went to school or they know somebody who did.

Now, I don't say that today to take away from any of the comments that you've had, that you've listened to today. Everybody has an opinion and everybody is proud of it and I'm no

16:29:46 1 different. But throughout my career and the
16:29:48 2 last nine years of my public life, I was an
16:29:50 3 elected official as the county mayor of
16:29:54 4 Montgomery County, Tennessee, and I had a lot of
16:29:56 5 people telling me what to do and giving me
16:29:58 6 opinions. And the difficult thing that you have
16:30:00 7 is the difficulty that I had as a county mayor
16:30:04 8 and that's deciding who to listen to and wading
16:30:08 9 through it to make sure that you set the right
16:30:10 10 policy. So I don't envy what you're doing.
16:30:14 11 As I listened, there were about four
16:30:16 12 common themes that I heard today, probably
16:30:18 13 others that I overlooked but four that I settled
16:30:22 14 on. One of them was stronger building codes.
16:30:26 15 Coming from local government, I can tell you
16:30:28 16 that that is going to start at the local level.
16:30:30 17 There are many many cities and counties in the
16:30:36 18 seven state area that you serve that have no
16:30:38 19 building codes. The mind set is, we're not
16:30:42 20 going to tell people what they can do and what
16:30:44 21 they can't do.
16:30:48 22 The second theme I heard was setting
16:30:50 23 aggressive goals and that's always important,
16:30:54 24 but it has to be measurable goals and I know you
16:30:56 25 know that because you've been doing that in your

strategic plan.

The third one was education. The statement was made and the person that made it, Paul Sloan, was correct. I think I can quote him. He said that energy efficiency is in the domain of the 9,000 customers and not in the TVA board room. So education is so so important so get your message out.

Then the last thing I heard that was brought back to me was that of partnership, developing partnerships. To be successful you've got to identify, you've got to cultivate, you've got to encourage, and then you've got to gain consensus of your partners, not the least of which is the local governments that ATVG represents. They are big energy users. We heard a lot of comments about the ultimate consumer, the residential consumer, we heard about industry and we heard about commercial. I don't know where government fits in there because I don't think they are really any one of those three, but the local governments have got to be one of your partners.

So my final comment is this, is that as an association, ATVG stands ready and willing

and desirous of working with you in this commendable goal of energy efficiency. Thank you for your time.

MR. FRANCIS: Tim Holt who will be followed by Wes Soward.

MR. HOLT: Hello. I'm just a private citizen. I live in Oak Ridge. I'm very happy to see that everybody here is here interested in this subject. I've been interested in it for a good while. I moved into Oak Ridge around the '70s and if we remember, the first energy crisis took place about that time. I found that my house had no insulation, had a strip of aluminum foil between the walls. Subsequently, I solved that problem.

But as I remember, TVA and our local Oak Ridge distributor had an energy program for older houses and I think they -- I haven't heard that they have been considered very much tonight. There's probably more volume of problems in the older houses than you're going to get in new house construction in a short period. So I feel like it would be good to repeat the program that existed back in the '70s where people could borrow money. You had an

audit of the house, people borrowed money and they paid it back on their energy bill.

The second issue, I'm a retired engineer and I spent a little time looking at house designs after I found out what kind of problem I had. I found some books talking about what's done in Canada and the difficulty with those pretty much was they didn't seem to worry too much about what the cost was if they saved all the energy. So I spent some time looking at both cost and energy and I did some design work on my own.

But, eventually, very recently, I found something that is common to just about everything I was trying to do, something called the passive house standard that's used in Europe. I agree with your -- what the original speaker who was just here. It's going to be difficult to get people to comply with the standards when they haven't had to comply with any. There is no energy standard in Tennessee. Georgia has one and it's optional. The last time I looked, it was an option. It can be used as marketing. Businesses can choose or owners can choose, but it wasn't mandated.

16:35:40 1 So I'd recommend looking at and at
16:35:42 2 least providing knowledge, education, and the
16:35:44 3 option for people to look at this passive house
16:35:50 4 in Germany where they don't even require a
16:35:54 5 heating system to keep the house going. They
16:35:56 6 use lots of insulation and they have a fresh air
16:36:06 7 system, ventilation, no heating system. Or if
16:36:10 8 the heating system is there, it's very small.
16:36:14 9 That's all. Thank you very much.
16:36:16 10 MR. FRANCIS: Wes Soward who will be
16:36:18 11 followed by Tim Tucker.
16:36:26 12 MR. SOWARD: Thanks, gentlemen, for the
13 opportunity to speak to you. My name is Wes
14 Soward. I have a company called Efficient
16:36:32 15 Business Solutions. I guess I'm starting my
16:36:34 16 fourth year. I've got about ten years'
16:36:36 17 experience as a home builder, as well.
16:36:38 18 I'd like to encourage you guys to
16:36:40 19 consider using home energy ratings, especially
16:36:42 20 the performance testing aspect when you look at
16:36:46 21 both new programs and existing home programs for
16:36:48 22 energy efficiency. There's a tremendous
16:36:50 23 opportunity in both arenas. Even if a new home
16:36:54 24 meets the current building codes, many times a
16:36:56 25 lot of the building details that are required to

16:37:00 1 make it perform properly aren't even
16:37:02 2 incorporated and it just gets pushed under the
16:37:04 3 mat, if you will, from the building inspection
16:37:06 4 side.
16:37:08 5 But if you're trying to consider a new
16:37:10 6 home project -- new home program, something like
16:37:12 7 Energy Star, which has used home energy rating
16:37:14 8 for several years as the basis of their program,
16:37:20 9 would be a beyond code program which would help
16:37:22 10 implement a lot of those problems. Just like
16:37:24 11 the previous speaker just said, in existing
16:37:28 12 homes there's a tremendous opportunity and some
16:37:30 13 mortgage companies have offered an energy
16:37:32 14 improvement mortgage which is based on the home
16:37:34 15 energy rating and we can actually evaluate what
16:37:38 16 the return on investment, what's the lifetime of
16:37:40 17 the product you're trying to upgrade, how long
16:37:42 18 is the loan amount and things like that, and
16:37:44 19 that's a very key component of the home energy
16:37:46 20 rating in terms of energy efficiency and
16:37:50 21 improvements.
16:37:52 22 Like me, the speaker said the home
16:37:54 23 energy rating also from a consumer standpoint
16:37:56 24 offers kind of a miles per gallon of your home,
16:38:00 25 if you will. It's an index of numbers from

zero to 100, 100 being basically the modern energy code. Anything worse then code would be over 100 and anything better than code would be less than 100. And it gives the consumer a way to say, my house performs comparable to the code or my house performs worse then the code or somewhere in the spectrum. They can compare products when they're buying a new house or trying to resell an existing house.

So I just, as a third party verifier in these programs, I'd just like to ask you guys to consider that as a key component of any residential programs you're thinking about. Thanks.

MR. FRANCIS: Tim Tucker. He'll be followed by Brant King.

MR. TUCKER: Gentlemen, thank you for this forum and hearing all these folks. Everything I've heard -- I've learned a lot today. I, too, am a consumer like the rest of us. There seems to, however, be a social disconnect between the word "green" and whether that means first save the planet or save what's in my wallet at the end of the month so I can raise my kids to help save the planet.

16:39:12 1 What we would like to see is a little
16:39:14 2 bit of reemphasizing that economic impact to the
16:39:18 3 consumer. The old adage of the way to a man's
16:39:20 4 heart is through his stomach and what we want to
16:39:24 5 find here is the way to his heart through his
16:39:26 6 wallet. If we can show the consumer how to save
16:39:30 7 money, how to make back a lot of what they
16:39:34 8 perceive as writing one of the three worst
16:39:36 9 checks -- in a recent survey I think one was to
16:39:38 10 the government, one was to an ex-spouse and one
16:39:40 11 was to the power company. Forgive me. It's
16:39:42 12 true. We all know it. Right? Then maybe we
16:39:46 13 can begin to change the public perception of
16:39:48 14 what green is, because unfortunately green has
16:39:54 15 -- well, it hasn't been a majorities movement.
16:39:58 16 It's rather become a political pejorative among
16:40:00 17 certain large circles.
16:40:02 18 So our mission as a consultative firm
16:40:04 19 is to begin with education, electric reducers,
16:40:08 20 cooperatives, consumers. We were asked to
16:40:10 21 attend this by the Middle Tennessee Electric
16:40:14 22 Cooperative, the one that services the five
16:40:16 23 surrounding counties in Nashville because our
16:40:20 24 programs are designed to do this.
16:40:22 25 One thing I would like to highly

recommend the investigation of -- not brand specific, we don't have a dog in the fight -- but there are companies that produce demand side control. This can be installed on the average home for 2000, $2500 and can effectively reduce costs of energy every month for $100 a month or so on a 3,000 square foot average home. It's impactful, it's painless, the consumer doesn't even know when it works, it doesn't impact their lifestyle. Answer a man's wants and you'll satisfy his needs. But if you try and market to his needs, he's going to go where his wants are. We all know this.

I'm going to be here tomorrow to ask some questions hopefully about the renewable resources impact, as well. I thank you for your time.

MR. FRANCIS: Brant King. He'll be followed by Liz Veazy.

MR. KING: After four and a half hours, I appreciate your patience. I am from Nashville, Tennessee. I own part of and also work in the energy conservation field and I've been recently retailing houses, so I've been out where the rubber meets the road.

TVA has some very specific power in certain areas, primarily in education. The general person on the street, if you talk to him about green, saving power, he thinks it means it's all going to cost me a lot more money right now. That's not the case, but that is the impression that people walk around with.

When you talk with home builders, their interest is very low because they see it as a more difficult sale, has no profit in it for them, and they're dealing in a market where people want lower cost per square foot. The reality is we can build in Middle Tennessee or any part of the Southeast for 2 or 3 percent more than a regular house, a house that will lose 50 percent of its demand rate, but no one knows about it, and it takes a combination of products and an authority figure, which you would represent or your distributor would represent, to say this really works and it really makes a difference.

The products that have been mentioned today are all very interesting. There is one that I think would be of particular interest. Geothermal lowers your demand in the summer,

where I know it's the most tough time for your industry, but also raises your use in the winter, so you kind of get a little boost from both sides with a product like that. Other utility companies, including Kansas City Power and Lights, specifically lower their rates in the winter to people that have those systems, to help them go along. It's a good idea.

There's some things that you can do that we couldn't do as a small industry. There is no official designation for a house, new home being solar ready. As you know from Oak Ridge, they are working very definitely on solar homes for the future, but there's no list of rules or designations of what would make a house ready for a solar panel to be added later as opposed to putting it on today when the costs are very high. If you did that, you would be the first. And I like that idea of you being the first.

Every school curriculum in the state should see Kilowatt Ours. The cost would be minimal, the effect would be enormous. My son wouldn't think of a cigarette and it's because of the 20 years the government spent educating him that this is a real bad idea. Same thing I

16:44:00 1 think would apply here.
16:44:02 2 We have some very good testing systems.
16:44:06 3 You've heard about the HERS test. The programs
16:44:08 4 that are currently in place are generally too
16:44:12 5 complex and too ill understood to be applied.
16:44:14 6 I've been told in Nashville that no one has ever
16:44:18 7 equaled for the Federal government $2,000 rebate
16:44:22 8 because no one could figure out the paperwork.
16:44:24 9 And if you go to a customer and say, gee, you
16:44:28 10 ought to have a HERS test and then maybe we can
16:44:28 11 get you a little incentive money, and they find
16:44:32 12 it's 4 to $600 for that test with no guarantee
16:44:36 13 they're going to get the money, you have a very
16:44:38 14 very difficult sale on your hand. It simply
16:44:40 15 doesn't apply.
16:44:40 16 The other thing that you could do that
16:44:42 17 would be very interesting is do something so
16:44:44 18 radical that it would become a news event. What
16:44:46 19 if you suggested to the Tennessee State
16:44:50 20 Legislature that the city and county taxes that
16:44:52 21 you pay in your home are in part, if not all,
16:44:56 22 dependent on how much electricity you used? I
16:45:00 23 think you would get a very dynamic reaction from
16:45:04 24 that. You have an opportunity to go beyond baby
16:45:06 25 steps. I certainly hope you do. Thank you.

16:45:12 1 MR. FRANCIS: Liz Veazy. Dr. William
16:45:16 2 Park. He'll be followed by our final speaker,
16:45:26 3 Carol Montgomery.
16:45:26 4 DR. PARK: I appreciate the opportunity
16:45:28 5 to share a few thoughts with you. I'm a
16:45:30 6 professor over at UT in the College of Ag
16:45:34 7 Sciences and Natural Resources and my specialty
16:45:36 8 is in resource and environmental economics. I
16:45:40 9 teach on subjects like incentive based
16:45:42 10 environmental policy and I've conducted research
16:45:46 11 on a specific example that -- not in the energy
16:45:50 12 area, but in the solid waste management area,
16:45:54 13 what's been dubbed by EPA as pay as you throw
16:45:58 14 pricing, pricing systems designed to encourage
16:46:00 15 recycling by households.
16:46:02 16 I think I saw a few weeks ago, and it
16:46:06 17 may have been mentioned before I was able to get
16:46:08 18 here today, plans for a pilot program involving
16:46:12 19 some kind of time of day or realtime pricing
16:46:16 20 approach and I applaud that commitment, if I
16:46:18 21 understand that correctly. And I certainly
16:46:22 22 appreciate the interest shown today in using
16:46:26 23 pricing incentives to change energy use behavior
16:46:30 24 during peak periods.
16:46:32 25 A skeptic might question whether

16:46:34 1 households will really respond to what seem like
16:46:36 2 fairly marginal price incentives perhaps. And
16:46:40 3 what I'd like to say is that findings from
16:46:42 4 research, not just mine, but from all around the
16:46:46 5 country on use of pay as you throw pricing
16:46:52 6 systems in solid waste management have shown
16:46:52 7 that the responses, the changes in behavior on
16:46:54 8 the part of households are very substantial in
16:46:56 9 terms of recycling behavior. That's in response
16:47:00 10 to what appear to be fairly small potential cost
16:47:04 11 savings on their part.
16:47:06 12 And I think that will be the case here.
16:47:08 13 I think that's in part because those pricing
16:47:14 14 systems force consumers or at least encourage
16:47:16 15 them to change their whole mindset and I think
16:47:20 16 that will lead to significant energy
16:47:24 17 conservation beyond even the adjustment of
16:47:28 18 demand in peak periods.
16:47:28 19 So I applaud this forum and what you're
16:47:32 20 looking at and make myself available to help in
16:47:34 21 any way I can. Thank you very much.
16:47:38 22 MR. FRANCIS: Our final speaker, Carol
23 Montgomery.
16:47:50 24 MS. MONTGOMERY: Gentlemen, I'm Carol
16:47:52 25 Montgomery. I am a good East Tennessee girl

now. I am going to tell you something that I think both you and the other speakers today will be very interested in. I have always been interested in conservation and in living right, but it's very hard to find the information when you're googling. It's hard. It's all over the place and a lot of it is very very technical. So in three weeks approximately I'm going to be launching an on-line green building directory and e-newsletter. And what makes us different, I think, is that not only are we free for the people coming to search for the information who will be normal folk, but we're also free for the businesses and the organizations and periodicals and the education organizations who offer this for careers. So everything will be in one place.

It's been set up -- it's gong to be very complex -- it's complex to set up but very easy to use. So the search engine will bring everything you need right there at your fingertips and you can -- you can find what you need easily. And I think TVA should be on that. So I have business cards, very very new business cards. We don't even have the logo quite

finalized. So we have impromptu business cards and my associate is up at the back.

So we would love to have everybody who has been speaking and has a business or has an interest come on board and we're going to make this national as fast as possible and then global. It's going to be huge. Thank you.

MR. FRANCIS: Thank you. I'd like to thank all the speakers who spoke today. Members of the Board, that was our final speaker.

MR. BOTTORFF: Good. Well, Gil, thank you very much. Those of you who came, thank you. Those who spoke, thank you. Your comments are very important to us. Some of you participated in the listening sessions when we rolled out the strategic plan. The strategic plan was influenced by your comments. Some of the things that we've started here today were as a result of those.

By the end of April, we will roll out a draft of the plan for conservation, demand response and renewables and I would encourage you to participate and comment on that plan, as well. We'll start tomorrow morning at 8:30 to talk about renewables. Thank you very much.

REPORTER'S CERTIFICATE

STATE OF TENNESSEE:
COUNTY OF KNOX:

I, Tracy A. Beamon, Certified Court Reporter and Notary Public, do hereby certify that I reported in machine shorthand the March 4, 2008, Proceedings in the above-styled cause; that the foregoing pages, numbered from 1 to 185, inclusive, were typed under my personal supervision and constitute a true record of said proceedings.

I further certify that I am not an attorney or counsel of any of the parties, nor a relative or employee of any attorney of counsel connected with the action, nor financially interested in the outcome of the action.

Witness my hand in the City of Knoxville, County of Knox, State of Tennessee, this 28th day of March, 2008.

Tracy A. Beamon, CCR-1003
My Commission Expires on the
12th day of February, 2011.