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Anticipating Alternative National and Regional Futures in Energy Efficiency

Report of the
Northwest Energy Efficiency Alliance Project
On
Consumers Trends in the Pacific Northwest and the US

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Acknowledgements

The CWA Facilitation Team would like to thank the workshop participants for the time, energy, and expertise they brought to the three-day workshop at the Skaminia Lodge in Stevenson, Washington on March 14-16, 2001. Their hard work, perseverance and good humor made the summit experience both richly diverse and productive. The participants are the primary authors of views expressed in this document.

EXECUTIVE SUMMARY

Thirty-five stakeholder representatives and six observers from thirty organizations interested in anticipating the adoption of energy efficiency for the Pacific Northwest described one hundred and sixty-eight national and regional trends extending to the year 2015 impacting energy efficiency, and proposed more than ninety actions for addressing these trends at the regional level. The representatives were engaged in a collaborative action planning workshop that was facilitated with a methodology founded in the systems sciences. Convergence was achieved on eight highly influential actions as the highest priority. The key directive from the workshop is to launch the next phase of this initiative in collaborative leadership with those regional entities that participated in the workshop and have indicated their commitment to work with the Northwest Energy Efficiency Alliance, which was the primary sponsor and convener of the event.

Before the workshop, a carefully designed survey based on an extensive literature review was distributed to the participants in order to provide them with a variety of plausible trends and events at the international, national and regional levels anticipated to impact energy efficiency. These trends were organized in twenty-four themes. The respondents were invited to make judgments of relative importance of the themes, as well as to articulate their own anticipations in terms of national and regional trends as triggered by the ideas included in every theme. Analysis of the thirty-four responses from the workshop participants indicated that the four dominant trends at the national level are: (a) Increasing frequency of power shortage re-sensitizes public; (b) Compact, long lasting energy sources; (c) Better awareness, involvement and participation; and (d) Development of sophisticated energy controls. On the other hand, twenty-six respondents identified the four dominant trends at the regional level as being: (a) Integrating energy-efficiency into home building; (b) Emphasis on environment, equity, social inclusion; (c) Traditional regulation replaced by stakeholder voluntary regulation; and (d) Understanding lifestyle basis of action in markets.

In the first stage of the workshop, participants described and clarified one hundred and seven national trends and seventy-one regional trends. The participants identified the twenty trends they considered the most important to focus their deliberations. Through a

robust investigation of plausibility influences among these trends, decided by over fifty-eight strong majority opinions, four tracks of influence were agreed upon, as shown graphically in Figure 1 (page 7):

- ***Track 1: Energy Conservation, which includes six important trends (shaded in Blue in Figure 1);***
- ***Track 2: Energy Efficiency, including six important trends (shaded in Green);***
- ***Track 3: Lifestyles of the Future, including five trends (shaded in Yellow);***
- ***Track 4: Energy-Supply, including three trends (shaded in Red).***

The participants' judgments of the relationships among the trends produced a pattern displaying how some trends impact others in the set of the 20 most important trends. The most influential trends are positioned at the lower levels of the tree-like pattern shown in Figure 1. The arrows in Figure 1 indicate the propagation of plausibility among the trends, so that addressing trends at the lower levels of Figure 1 will help significantly in addressing trends at the higher levels, provided there are arrows connecting those trends.

In accordance with the judgments of the majority of stakeholders, three of the four dominant tracks are connected. The essence of the linkages among the first three tracks is: **Reduced consumption of energy by consumers and their awareness of the need to protect the environment will enhance the plausibility of increases in energy efficiency through the adoption of green technologies and a distributed generation of electricity, which in turn will have a significant impact in terms of consumer lifestyles around the year 2010.** For example, people will start embracing compact urban form as a way to reduce automobile use and build community while integrating communications and energy technologies into an energy web concept.

The only trend on the Plausibility Map to fall at the deepest level (i.e., most fundamental) is:

(Trend-128) Reducing the gap of energy consumption per capita among countries will increase the national need to save energy in whatever way there is.

The author of this trend stated during clarification:

> *I find "sustainable development" as the most important context for handling any thought about energy matters in the whole world, and that "sustainability" (leaving our descendants a livable planet to develop themselves with no imposed restrictions) is my main interest and the reason to be here as a participant.*

Stakeholders judged that this particular trend is the "deep driver," exerting leverage at the deepest level of the Plausibility Map. According to their judgment Trend #128 will enhance the plausibility of directly influencing state regulatory and legislative bodies to provide incentives at the regional level that will promote the adoption of energy conservation and efficiency in the Pacific Northwest. Trend #128 impacts directly or indirectly twelve of the twenty trends appearing in Figure 1. Because of the meaning the author ascribed to this trend it is assigned in the in the Energy Conservation (Track 1). However, its influences also propagate along the pathways of the Map and enhance the plausibility of other trends belonging in the tracks of Energy Efficiency (Track 2) and Lifestyles of the Future (Track 3). The interpretation of the stakeholder judgments in terms of plausibility influences among the trends is that the reduction in the gap of energy consumption per capita among all countries will impact ecological integrity and social sustainability. The ecological sustainability trend will manifest its impacts on consumer behavior in terms of lifestyles at the national and regional levels of analysis by the year 2010.

In the second stage of the workshop the participants generated and clarified more than ninety proposed actions for impacting the trends in a desirable way for the future of energy efficiency in the Pacific Northwest. Working methodically in four small groups, the participants identified the eight most important action options. The combination of these action options represents a recommended desirable regional future to be implemented by the Alliance and other Regional bodies participating in the workshop. These eight action options stood out with respect to the importance attributed to them by individual voting by participants, by the construction of alternative team action scenarios, and their leverage on the most influential trends of the Plausibility Map (see Table 3,

page 8).

These eight actions belong to six clusters or categories as determined by the participants. Those categories and actions are:

Cluster # 1: Price & Taxes

- **Action Option 1: D*evelop tiered rate proposals to encourage energy efficiency and/or distributed generation instead of growth in loads.***
- **Action Option 12*: Encourage state regulatory agencies to experiment with innovative pricing mechanisms and consumer signals.***

Cluster # 3: **Education and Marketing**

- **Action Option 52:** ***Adopt a region wide DSM marketing strategy that has a common theme or logo.***

Cluster # 4: Regulatory Action

- **Action Option 4*: Establish competitively neutral, equitable requirements for utility investment in energy efficiency.***

Cluster # 5: Metering

- **Action Option 24*: Establish a standardized protocol for smart meter installation across the region.***
- **Action Option 25*: Encourage widespread installation of electric metering that allows alternative rate design.***

Cluster # 6: Distributed Generation Infrastructure

- **Action Option 7:** ***Review barriers to distributed generation and try to reduce or eliminate.***

Cluster # 8: Tools

- **Action Option 15:** ***Use public credit to create a buying / purchase guarantee cooperative tool for regional hardware purchases.***

It is suggested that the reader who would like to learn in more detail the meanings of the

above eight actions, as proposed by the authors participating at the workshop, should consult Table 2 in Appendix F.

Future collaborative regional action to promote the adoption of energy efficiency in the Pacific Northwest should give serious consideration to the eight most effective actions belonging to the six categories identified above.

However, in the opinion of the authors of this report, the Alliance should revisit some of the other options which were proposed by the stakeholders at the workshop but were not included in the Consensus Regional Future. This opinion is based on the stakeholder identification of Trend #128 as the deep driver of the Plausibility Map.

In particular, two action options that were classified by the stakeholders in **Cluster 2: Value-Base (Normative),** might need to be revisited by the Alliance in light of their desirable impact on **Trend #128: Reducing the gap of energy consumption per capita among countries will increase the national need to save energy in whatever way there is.**

These two options are:

- **Action Option 2***: Establish energy efficiency as the core of sustainability.*
- **Action Option 14***: Enhance energy and efficiency sophistication of local sustainability efforts planners, media and professionals (e.g., procurement officials, realtors, bankers, etc.).*

In addition, there are three other options that even though they were not included in the Consensus Regional Future by the stakeholders, might be of interest to the Alliance, especially in the light of some of the trends identified in the survey results. These three belong to **Cluster 7: Pacific Northwest Economic Development** and they are:

- **Action Option 8:** ***Provide incentives to attract companies to the NW that make energy efficiency products / green products.***
- **Action Option 9:** ***The NW is recognized as the "silicon valley" of revolutionary, distributed energy technology.***

- **Action Option 13:** ***Promote the formation of a regional forum to attract companies into the region who will provide energy efficiency products and services.***

It is interesting also to note that during the first two days of the workshop participants generated over 160 trends, converged on 20 most important, and discovered those with the maximum leverage in terms of plausibility. On the third day of the workshop they generated 91 action options and converged on the eight most effective reported above. The number of observations generated at this workshop exceeds the average number, based on over 200 applications of the workshop methodology, by a factor of 2.5. The "strategic dialogue" in terms of convergence to eight action options for implementation out of a total of 91, also appears to be interesting when compared to other workshops.

It is important to appreciate the dedication of the participants in addressing this complex issue from a variety of perspectives through a very systematic and systemic process for dialogue. Because of the democratic and disciplined type of dialogue practiced at the workshop, the findings reported in this document are representative of the majority of the stakeholders participating at the workshop. Their observations and deliberations have been captured here, so in essence they are the primary authors of views expressed in this report.

Figure 1: Plausibility Pattern among Most Important National / Regional Trends / Events

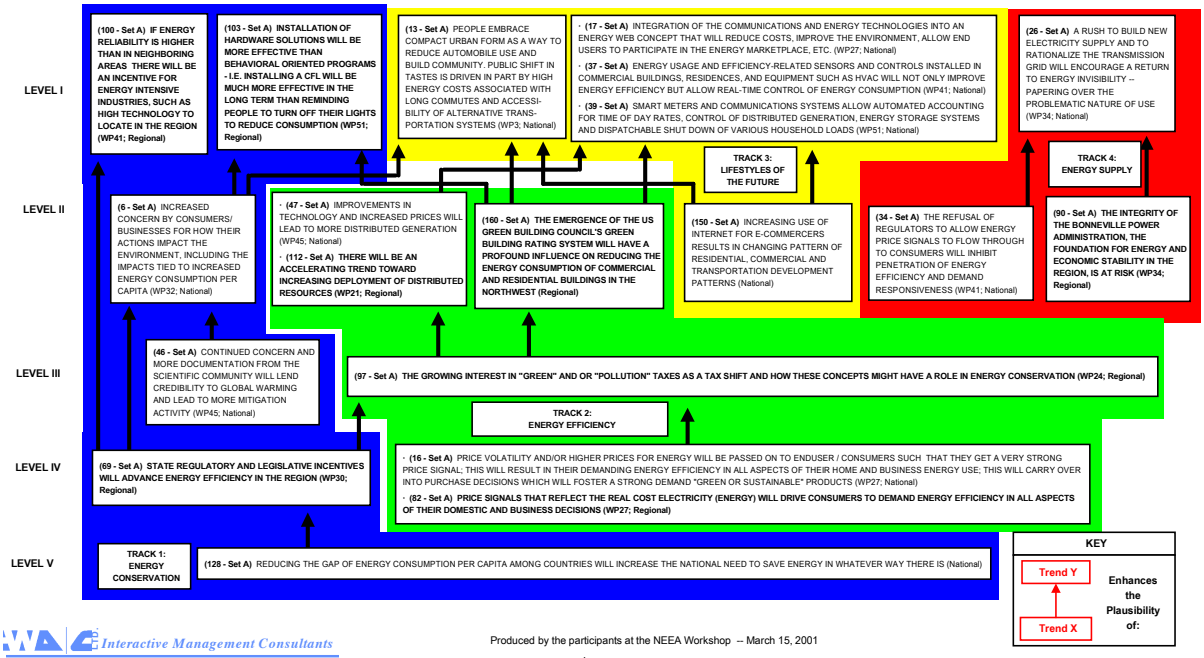

Table 3: Voting Results on Action Options for Impacting in a Desirable Way the Plausibility Map (Individual Votes and Team Scenario Votes)

Team Scenarios	Individual Votes	Action Option:
All 4 Teams	(4)*	**(1 - Action Option)** DEVELOP TIERED RATE PROPOSALS TO ENCOURAGE ENERGY EFFICIENCY AND/OR DISTRIBUTED GENERATION INSTEAD OF GROWTH IN LOADS **(Cluster #1).**
2 Teams	(3)	**(3 - Action Option)** CONDUCT OR SURVEY EXISTING RESEARCH REGARDING FUNDAMENTAL BELIEF STRUCTURES AS THEY RELATE TO ENERGY AND NATURAL RESOURCE USE **(Cluster #3).**
3 Teams	(7)*	**(4 - Action Option)** ESTABLISH COMPETITIVELY NEUTRAL, EQUITABLE REQUIREMENTS FOR UTILITY INVESTMENT IN ENERGY EFFICIENCY **(Cluster #4).**
3 Teams	(0)*	**(7 - Action Option)** REVIEW BARRIERS TO DISTRIBUTED GENERATION AND TRY TO REDUCE OR ELIMINATE **(Cluster #6).**
1 Team	(3)	**(8 - Action Option)** PROVIDE INCENTIVES TO ATTRACT COMPANIES TO THE NW THAT MAKE ENERGY EFFICIENCY PRODUCTS / GREEN PRODUCTS **(Cluster #7).**
0 Team	(3)	**(9 - Action Option)** THE NW IS RECOGNIZED AS THE "SILICON VALLEY" OF REVOLUTIONARY, DISTRIBUTED ENERGY TECHNOLOGY **(Cluster #7).**
All 4 Teams	(5)*	**(12 - Action Option)** ENCOURAGE STATE REGULATORY AGENCIES TO EXPERIMENT WITH INNOVATIVE PRICING MECHANISMS AND CONSUMER SIGNALS **(Cluster #1).**
1 Team	(3)	**(13 - Action Option)** PROMOTE THE FORMATION OF A REGIONAL FORUM TO ATTRACT COMPANIES INTO THE REGION WHO WILL PROVIDE ENERGY EFFICIENCY PRODUCTS AND SERVICES **(Cluster #7).**
3 Teams	(2)*	**(15 - Action Option)** USE PUBLIC CREDIT TO CREATE A BUYING/PURCHASE GUARANTEE COOPERATIVE TOOL FOR REGIONAL HARDWARE PURCHASES **(Cluster #8).**
3 Teams	(0)*	**(24 - Action Option)** ESTABLISH A STANDARDIZE PROTOCOL FOR SMART METER INSTALLATION ACROSS THE REGION **(Cluster #5).**
All 4 Teams	(6)*	**(25 - Action Option)** ENCOURAGE WIDESPREAD INSTALLATION OF ELECTRIC METERING THAT ALLOWS ALTERNATIVE RATE DESIGN **(Cluster #5).**
2 Teams	(3)	**(29 - Action Option)** PROVIDE AN AUTHORITATIVE ANALYSIS OF THE TRANSMISSION AND DISTRIBUTION BENEFITS AND THE ENRGY COST BENEFITS OF DISTRIBUTED GENERATION **(Cluster #6).**
2 Teams	(3)	**(46 - Action Option)** STRONGLY ENCOURAGE (WITH INCENTIVES) IMPLEMENTATION OF COMMUNICATION INFRASTRUCTURE FOR IMPLEMENTATION OF REAL TIME ENERGY PRICING PRINCIPLES **(Cluster #5).**
3 Teams	(5)*	**(52 - Action Option)** ADOPT REGION WIDE DSM MARKETING STRATEGY THAT HAS A COMMON THEME OR LOGO **(Cluster #3).**
2 Teams	(3)	**(53 - Action Option)** DEVELOP COLLABORATION BETWEEN THE ALLIANCE AND THE OREGON ENERGY TRUST **(Cluster #8).**
1 Team	(4)	**(64 - Action Option)** DEVELOP A REGIONAL ENERGY EFFICIENCY / GREEN PRODUCT CERTIFICATION PROGRAM (USING JOHN PYRCH'S LOGO) **(Cluster #8).**
2 Teams	(4)	**(84 - Action Option)** DEVELOP WEB-BASED FEEDBACK TOOLS FOR HOMES AND BUSINESSES THAT REPORT INSTANTANEOUS ENERGY USE AND COST RATHER THAN RELYING ON MONTHLY AFTER THE FACT UTILITY BILLS **(Cluster #5).**

***These eight action options are identified in Figure 2 as those selected for the Consensus Regional Future**

Produced by the participants at the NEEA Workshop March 16, 2001

INTRODUCTION

The last few years have seen a growing recognition of the importance of the efficient use of energy. The vision of the Northwest Energy Efficiency Alliance (Alliance) is to create a culture in the Pacific Northwest in which the efficient use of energy is a core value among consumers and businesses. The rationale for this, as stated in the Alliance's strategic plan, is that energy savings resulting from the marketplace embracing energy-efficient products and services will lower the long-term cost and environmental impact of the region's electricity system, resulting in a healthier economy and a cleaner environment. Additional benefits resulting from Alliance efforts, such as increased production or reduced waste, can help Northwest businesses become more competitive. To address the challenge of improving energy efficiency in the Region, the Alliance initiated a project titled "Consumer Trends in the Pacific Northwest and the US." The project was launched with a survey distributed among all the participants prior to a three-day workshop. The focus of this report is on the methodology and findings of the workshop.

These findings represent the voice of representative stakeholders of the community that participated in the workshop. Their statements, clarifications, and dialogue are preserved in their original form in this report, as documented and distributed during the workshop.

Thirty-five participants, and six observers, representing futurists, environmentalists, utility company executives, journalists, social and political scientists, administrators, regulators, and consumer advocates participated in the workshop on March 14-16, 2001. The list of participants and their organizations is presented in Appendix A. At this event, stakeholders explored the long-term national and regional trends that will impact the adoption of energy efficiency in the PNW and chose specific actions to undertake in the near future.

PRE-WORKSHOP SURVEY

A Web-based survey was produced in preparation for the workshop, based on sampling of relevant secondary research. The survey was designed to engage the participants in responding to questions at three distinct but interrelated contexts and was framed in such a way as to encourage participants to think "our of the box". These three contexts are:[1]

- International trends in energy consumption for a time horizon of twenty years;
- National trends in energy efficiency for a time horizon of fifteen years;
- Regional trends in energy efficiency for a time horizon of ten years.

The details of the Survey and the questions asked prior to the workshop appear in Appendix B. The summary of the survey results can be found in Appendix C.

A Guide to Reading this Report

The narrative in this report consists of two interwoven parts, one briefly explaining the system methodology used during the workshop (including graphics that are displayed as Exhibits), the other describing the findings of the workshop (including products displayed as Tables & Figures). The methodology sections simply answer the question "how did the participants get from one set of findings to another?" It is not necessary to read the methodology sections in order to understand the findings.

At the end of the report there is a compendium of the participant's contributions that are referred to throughout the findings. We encourage you to use the narrative of the report primarily as a guide to interacting directly with the voice of the participants through the compendium in its tables and figures. For example, the first section on findings below suggests that the reader at least scan the diversity of opinions, presented in Appendix D, before continuing.

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[1] A schematic of the overall process is presented in Exhibits 1-2 on page 12.

1) NATIONAL/REGIONAL TRENDS/EVENTS

1.1) METHODOLOGY: DEFINING COMPLEX SITUATIONS THROUGH COLLABORATION

1.1.1) Background

The approach to Phase I of the NEEA project on consumer trends in the Pacific Northwest and the US is based on a Collaborative Action Planning model that was developed jointly with the Alliance staff in response to an RFP. The model uses a methodology with a long established track record of applications in the systems sciences, and has been extensively subjected to the peer-review literature of the systems community. CWA Ltd. has customized the model to the unique requirements of inter-organizational stakeholder engagement essential to the formation of collaborative leadership in adopting energy efficiency for the region.

For the sake of brevity, specific discussion on the basis of this model in systems science has not been included in this report (see Appendix H). The presentation of the methodology here is solely employed to tie the flow of the findings together for the reader.

1.1.2) The Challenge of Collaboration in Complex Situations

Any group of people, when trying to solve a complex problem confronts three challenges that actually represent opportunities.

1. First, the problem often seems vast, unwieldy, bewildering. Individual people often find one aspect of the problem easy to understand, but to each person the entire problem is overwhelming. If all the individual understandings could be somehow joined together, real progress would occur.
2. Second, individual people – depending on their backgrounds and training – perceive the problem differently, and use different terms or language to describe their perceptions. Again, uniting these differing perspectives could be a real opportunity to improve everyone's understanding of the problem, but often groups do not allow individuals enough time to clarify their perspective so that others understand them sufficiently, cutting short the group learning that is so

essential to solving complex problem situations.

3. Finally, while no one in the group comprehends the entire problem, the group as a whole possesses a collective understanding of the problem that would enable them to map out how different components of the problem are related to each other. The trick is to devise a method that facilitates a group tapping into this collective understanding and wisdom in a constructive, goal-oriented manner.

The workshop used a facilitation methodology that addresses each of these challenges, striving to turn them into collective opportunities. The facilitation approach in this workshop proceeds through four basic stages – the first three of which are conducted during the workshop, the fourth completed in follow-up activity by the workshop convener, in this case the Alliance (see Exhibits 1 and 2).

Exhibit 1: The Stages of Collaborative Inquiry

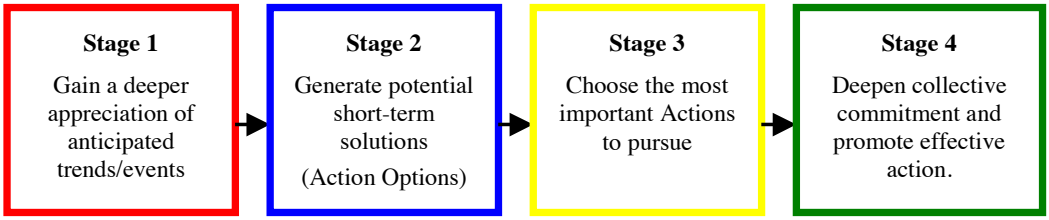


Exhibit 2: Directory of Findings from Each Stage

Stage 1 Findings	Stage 2 Findings	Stage 3 Findings	Stage 4 Follow-Up
1) Survey Instrument in Appendix B 2) Survey Results in Appendix C 3) Clarification of National / Regional Trends, Table 1 in Appendix D 4) Clusters of National Trends in Appendix E 5) Plausibility Map of Trends in Fig. 1	1) Clarification of Action Options, Table 2 in Appendix F	1) Action Option Voting Results, Table 3 2) Consensus Regional Future, Figure 2	1) Commitments to Collaborative Leadership on Selected actions, 2) Follow-on Options

1.1.3) Stage One: Gain a Deeper Appreciation of Trends/Events

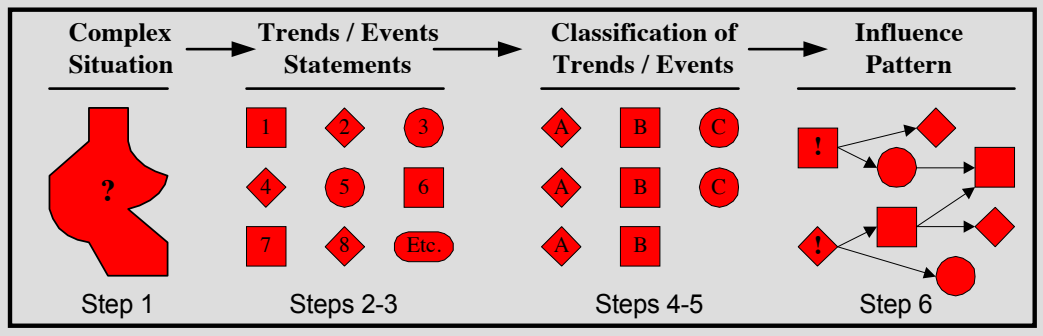
The first stage – gaining a better appreciation of component trends/events – proceeded in six steps:

1. Before the workshop, define a preliminary outline of the situation by asking knowledgeable people to respond to a survey. The survey results were used as a means to provide participants at the workshop with a rough sketch of the anticipated alternative futures, to frame the triggering question that starts the workshop deliberations, and to sensitize participants to the diversity of opinion on the anticipation of alternative futures.
2. At the workshop, generate alternative futures by articulating component trends/events, with participants individually listing separate trends/events that they think are important parts of the complex situation, in order to simplify matters.
3. Clarify individual anticipations about these trends/events in order to promote group learning.
4. Present trends/events within Affinity Clusters, i.e., categories of similar characteristics, and compile individual judgments (by voting) to further understand which trends/events are of higher comparative importance.
5. Use group judgments (through strong majority votes) to understand how trends/events are interrelated in terms of their plausibility enhancement upon one another.
6. Use this collective understanding to identify the most influential of the important trends/events.

The products of these six steps can also be viewed as a diagram. Exhibit 3 depicts how the group decomposed the complex situation into component trends/events, worked to understand exactly what these trends/events meant to the individual who authored them, and then deepened their collective understanding of these trends/events by seeing how they were interrelated. This results in the identification of trends/events which are

considered “deep drivers” of the situation (indicated by a ! in Exhibit 3) that influence the outcome of many other trends/events. Resources committed to the deep drivers attain the highest overall leverage.

Exhibit 3: Products of Each Step in Stage One



We now turn to the findings of the workshop during this first stage, namely gaining a deeper appreciation of the anticipated national and regional trends impacting energy efficiency.

1.2) FINDINGS: THE ANTICIPATION OF NATIONAL TRENDS

Prior to the workshop the participants responded to the survey, which was designed as a means for identifying the most relevant trends in terms of their impact on progress in electric energy efficiency at the national level (see Appendix B), and hence establish a context for their deliberations at that level. In addition to selecting trends within the 12 categories of trends in the national context of the survey, the participants were asked to propose some national trends from their own perspective and experience, and to be prepared to explain their meaning at the workshop (see responses in Appendix C).

At the workshop the participants explained the meaning of the trends they proposed in response to the survey. After the explanations of these meanings, the participants were engaged in generating additional trends by responding to a **triggering question.** The framing of this question is crucial for the success of the workshop. It is called "triggering question" because it triggers ideas in the minds of the stakeholders. It also represents the entry point into the complex situation, which is the target of inquiry by the group.

The **triggering question** selected for the first day of the workshop was:

> ***"What national trends/events would you consider as having the greatest impact on progress in electric energy efficiency over the next fifteen years?"***

Stakeholders described sixty-seven trends that were generated in response to the survey and contributed another thirty trends in response to the triggering question during the workshop. The total number of 107 national trends, were clarified in terms of their meanings during discussion with the entire group. The anticipated trends and their clarifications appear as **Table 1 in Appendix D**. The trends were grouped into clusters

based on distinctions between trends made by the stakeholders, during clarification.[2] Each participant chose five trends, ranking them from 1 to 5 (most important to less important). Eleven trends received at least five votes. These trends were used for the construction of a plausibility map as will be described in a later section.

> *Note to the reader – if you were not a participant in the workshop* ***you should at least scan Appendix D*** *in order to appreciate the diversity of opinions about the situation before continuing. You should determine whether your perspective on national trends is represented.*

[2] The clusters of trends is presented in **Appendix E.** Cluster analysis was conducted by a member of the facilitation team, following a prescribed analysis method, and who relied solely on distinctions between trends invoked by individual participants. This was done primarily to enable the participants to vote for the trends they considered most important in the context of a categorical view of trends. Collaboration time on this step was minimized in favor of according more time to the investigation of influences. As such it carries the caveat that not too much should be read into this particular arrangement at this stage of the project. It is primarily a tool of inquiry rather than a product.

1.3) FINDINGS: THE ANTICIPATION OF REGIONAL TRENDS

Prior to the workshop the participants responded to the survey, which was designed as a means to identify the most relevant trends in terms of their impact on the adoption of energy efficiency at the regional level. The intent of the survey, as mentioned earlier, is to establish a context for the deliberations of the participants at the regional level. In addition to selecting trends within the 12 categories of trends in the regional context of the survey, the participants were also asked to propose some regional trends from their own perspective and experience, and to be prepared to explain their meaning at the workshop.

After the explanations of all the meaning of those trends proposed in response to the survey, the participants were engaged in generating additional trends by responding to a **triggering question,** which was:

"What PNW trends/events would you consider as having the greatest impact on the adoption of electric energy efficiency, over the next five to ten years?"

Stakeholders described sixty regional trends that were generated in response to the survey and contributed another eleven trends in response to the triggering question during the workshop. The total number of 71 regional trends were clarified in terms of their meanings during discussion with the entire group. The anticipated trends and their clarifications appear as **Table 1 in Appendix D**. Each participant then chose five trends from the list of 71, ranking them from 1 to 5 (most important to less important). Nine trends received at least six votes. Eight of these trends were used for the construction of a plausibility map as will be described in the next section.

1.4) METHODOLOGY: DETERMINING INFLUENCES AMONG THE NATIONAL/REGIONAL TRENDS/EVENTS

After describing a complex problem in terms of its component parts or trends and perspectives on the trends, people can better plan what to do if they take the time to understand how various trends influence other trends. Often, through this disciplined inquiry, people are able to discover that a seemingly insignificant trend in fact directly

and indirectly affects our ability to address a wide range of other trends; meanwhile, a trend that initially looked to be critical in fact has little influence on any other parts of the overall situation. The facilitation method takes the group through this discovery process by focusing the group on the question: "if this trend comes to pass, will it influence the plausibility of another trend?" This question is asked repeatedly with pairs of trends. The group collectively decides yes or no by voting, and slowly a pattern of influence emerges. A computer program helps to discern this pattern by taking the results of the voting and using some basic inference logic. (For example, if trend A helps the plausibility of B, and trend B helps the plausibility of C, then trend A helps the plausibility of C and the question "does A influence C" does not have to be posed to the group). This saved the group two thirds of the time to complete this step in a robust fashion as compared to not having such support.

Those trends that influence many other trends can be thought of as having a lot of **LEVERAGE**, in that if we were able to impact these trends, we will be significantly better off in impacting lots of other trends.

The entire group explored the influences among the twenty most important national and regional trends resulting in the plausibility map represented in Figure 1 of the participant's workbooks and also appears as **Figure 1** (see page 7) of this report.

1.5) FINDINGS: THE PATTERN OF PLAUSIBILITY ENHANCEMENT AMONG THE NATIONAL/REGIONAL TRENDS/EVENTS

The stakeholders identified plausibility influences among 20 trends. The number of trends considered and the complex influence relationships found (depicted in Figure 1) may initially be somewhat overwhelming to the reader, especially a reader who did not participate in the workshop; however, closer examination reveals some interesting patterns. In particular, the trends can be grouped into four tracks of streams of plausibility enhancement. These four tracks are (in Figure 1): **Energy Conservation** (shaded in Blue), **Energy Efficiency** (shaded in Green), **Lifestyles of the Future** (shaded in Yellow), and **Energy Supply** (shaded in red). Three of the four dominant tracks, which appear in Figure 1 (see page 7) as streams of plausibility enhancement, are linked, as we will discuss in more detail in the following sections. In accordance with the judgments of the majority of stakeholders, the essence of the linkages among the first three tracks is: **Reduced consumption of energy by consumers and their awareness of the need to protect the environment will enhance the plausibility of increases in energy efficiency through the adoption of green technologies and increased distributed generation of electricity, which in turn will have a significant impact in terms of consumer lifestyles around the year 2010, such as people embracing compact urban form as a way to reduce automobile use and build community while integrating communications and energy technologies into an energy web concept.**

In the following sections we will describe the Plausibility Map and offer interpretive commentary founded on the judgments and explanations of the stakeholders.

1.5.1) TRACK 1: ENERGY CONSERVATION

The area of Figure 1 shaded BLUE contains six trends from Level V up to Level I that form a track of propagation of plausibility. Three of these trends are national and three regional. The trends at each level exert influence on the trends directly or indirectly linked with them through the arrows of plausibility. This track covers many of the trends that address issues of energy conservation at the global, national and regional levels. In particular the trends in this track at each level focus on the following themes:

Level V: Global Inequities in Energy Consumption (national);

Level IV: State Regulatory and Legislative Incentives (regional);

Level III: Credibility to Global Warming (national);

Level II: Environmental Impacts of Energy Consumption (national); and

Level I: Hardware Solutions and Energy Reliability (regional).

The specific trends of this track and their inter-relations will be discussed in this section.

1.5.1.1) TRACK 1: Level V: Global Inequities in Energy Consumption (national)

There is only one trend on the Plausibility Map to fall at Level V feeding upward to influence directly or indirectly five out of the six trends belonging to the Energy Conservation track:

(Trend-128) Reducing the gap of energy consumption per capita among countries will increase the national need to save energy in whatever way there is.

Clarification:

> *I find "sustainable development" as the most important context for handling any thought about energy matters in the whole world, and that "sustainability" (leaving our descendants a livable planet to develop themselves with no imposed restrictions) is my main interest and the reason to be here as a participant.*
>
> *To attain sustainability in our planet, there are needed four principles:*
>
> - *Economic development;*
> - *Social sustainability;*
> - *Ecological integrity; and*
> - *Fair play among nations in political, economic and international conflict matters that require international law and jurisprudence (in less words: no hidden agendas from any government or influential groups).*
>
> *What I mean with social sustainability was that it is imperative to create conditions in every country and among countries to facilitate people the satisfaction of at least their basic needs regarding nutrition, health, housing, public services, education and employment. Otherwise, we would be sorry whenever revolts, forced migrations, terrorism and wars appeared to tell us that the poor people head towards the same goods the rich people already enjoy. This requires from us all to be socially responsible (use energy but save energy, for example). Ecological integrity means for me not to harm our environment, unless we expect it to react against us in many different ways, including the elimination of different forms of life. Of course, economic development is also needed to achieve sustainability and it is strongly linked positively with social development whenever wealth is not only responsibly generated but also responsibly distributed. The*

responsible generation of wealth is positively linked with ecological integrity, but irrational economic activities would be negatively linked to it. The fair play among nations means no economic or political hegemony imposed by one or various rich countries through taking advantage of being ahead in scientific and technological knowledge, economics and armaments. The need to share information with others is embedded in fair play.
Ecological integrity and social sustainability are strongly linked in this perspective.

6 wall votes.[3]

Stakeholders judged that this particular trend is one of the "deep drivers," exerting leverage at the deepest level of the Plausibility Map. According to their judgment Trend #128 will enhance the plausibility of directly influencing state regulatory and legislative bodies to provide incentives that will promote the adoption of energy conservation and efficiency in the region. Trend #128 impacts indirectly most of the other trends in Track 1, but also its influences propagate along the pathways of the Map and enhance the plausibility of other trends belonging in the Energy Efficiency (Track 2) and Lifestyles of the Future (Track 3), as we will elaborate later in this section. The argument made by this stakeholder is that reducing the gap of energy consumption per capita among all countries, will impact ecological integrity and social sustainability, which will manifest itself in terms of consumer lifestyles at the national and regional levels of analysis, as shown graphically in the Plausibility Map.

1.5.1.2) TRACK 1: Level IV: State Regulatory and Legislative Incentives (regional)

(Trend-69) State regulatory and legislative incentives will advance energy efficiency in the region (regional). Clarification:

Historically energy efficiency managed by utilities has fluctuated. In more recent years imposition of alternative funding mechanisms, e.g. state legislated increases or tariff. These types of funding mechanisms will continue to grow.

Stakeholders judged that this particular trend will be influenced directly by the ethic of sustainability discussed above, in the sense that state legislative and regulatory bodies will provide incentives for households and businesses adopting energy

[3] The count of "wall votes" represents the number of participants that selected a particular trend in their five relatively most important.

conservation and efficiency. These incentives propagate upwards in Figure 1 and enhance the plausibility of consumers and businesses becoming more aware of how their actions impact their environment in terms of energy consumption. Furthermore, the state regulatory incentives will impact the attractiveness of the region, as compared with neighboring areas, for energy intensive industries to locate in the PNW region.

1.5.1.3) TRACK 1: Level III: Credibility to Global Warming (national)

Stakeholders judged that the global warming trend at Level III is not influenced by any other trend at lower levels of the Map. This trend propagates upward and increases the plausibility of consumers becoming more sensitive to the environmental impacts of increased energy consumption in terms of global warming and its adverse ecological and health impacts.

(Trend 46) Continued concern and more documentation from the scientific community will lend credibility to global warming and lead to more mitigation activity (national). Clarification:

> *The impetus for 46 is from a couple of things. In the recent past there hasn't been agreement on global warming. Now we have at least agreement that there is a problem. In Oregon we were able to sit down with several interested parties and designed a climate trust. Agreement by all parties concerned. There is evidence that there is a movement in the market due to global warming speculation. Comment: There is no scientific documentation about global warming. But it is an important issue.*

1.5.1.4) TRACK 1: Level II: Environmental Impacts of Energy Consumption (national)

As mentioned above the plausibility of this trend is enhanced directly by the global warming trend and the state regulatory and legislative incentives and indirectly by the social responsibility and sustainability ethic (Trend #128).

(Trend 6) Increased concern by consumers/businesses for how their actions impact the environment, including the impacts tied to increased energy consumption per capita (national). Clarification:

> *It is about some key things in terms of energy usage awareness. The household consumer may not be aware of how energy usage contributes to global warming or*

other environmental damages. Need for a clear message hoping that people will get a greater realization from that. Information on how people can consume energy more efficiently.

1.5.1.5) TRACK 1: Level I: Hardware Solutions and Energy Reliability (regional)

Level I of Track 1 contains two trends both of which are impacted by the trends located at the lower levels. These two trends are:

(Trend 100) If energy reliability is higher than in neighboring areas there will be an incentive for energy intensive industries, such as high technology to locate in the region (regional). Clarification:

At least for industrial plants, energy costs will increase although energy prices in the northwest will not be as high as in California, for example. It will serve also not only for energy costs, but also reliability.

Comments: Other types of industries? Answer: I tend to see more high tech industries, but others may also benefit.

Comment: California is deregulated and now we are moving towards that direction. Buying KW in this new market, and market spots being the same, there will be leveling of prices in the north-to-south range, and this would eliminate this incentive. Answer: I agree that "if we have deregulation across the entire region" that prices will level to about the marginal cost across the entire area. But I don't believe this is going to happen anytime soon.

Comment: Reliability may be the main issue for high tech industries, the ones that would be more interested in relocating here. Answer: I agree, that reliability may be the main important aspect for the region. Change the statement to include "increase reliability" other than "lower price".

(Trend 103) Installation of hardware solutions will be more effective than behavioral oriented programs - i.e. installing a CFL will be much more effective in the long term than reminding people to turn off their lights to reduce consumption (regional). Clarification:

Due to rising cost people will do things such as installation of hardware for energy management. Smart meters, etc are more effective than soft programs oriented to media or people.

C: Do you mean that hardware is more effective than behavioral changes?

A: Yes

C: I suggest you add behavioral to the statement.

Q: What do you mean by effective?

A: My issue is that there will be more energy saved in the lifetime of a situation.

1.5.2) TRACK 2: ENERGY EFFICIENCY:

The area of Figure 1 shaded GREEN also contains six of the twenty most important national and regional trends. These six trends display a propagation of plausibility from Level IV up to Level II. Four of these trends are regional and two are national. The trends at each level exert influence on the trends directly or indirectly linked with them through the arrows of plausibility.

This track covers many of the trends that address issues of energy efficiency at the regional level. At Level IV there is a reinforcing cycle containing two trends, one national (Trend #16) and one regional (Trend #82), both dealing with price volatility and signals that reflect the real cost of energy. At Level II there is another reinforcing cycle containing two other trends, one of which is national (Trend #47) and the other regional (Trend #112), both focusing on the issue of distributed resources and generation. Reflecting on these two reinforcing cycles, both of which contain national and regional trends, the reader should appreciate the stakeholders' judgment of the cross-impacts between national and regional trends.

In particular the trends in this track at each level focus on the following themes:

Level IV: Price volatility and signals (national and regional);

Level III: Interest in "Green" (regional); and

Level II: Distributed Generation and Green Building Consumption (national and regional).

The specific trends and their inter-relations will be discussed in this section.

1.5.2.1) TRACK 2: Level IV: Price volatility and signals (national and regional)

The two trends at this level form a "reinforcing cycle:" Stakeholders judged that each one of these two trends will enhance the plausibility of the other. Both trends address the issue of the impact of price signals on energy efficiency in all aspects of energy use by the consumers at their home and their businesses. These two trends are:

(Trend 16) Price volatility and/or higher prices for energy will be passed on to enduser / consumers such that they get a very strong price signal; this will result in their demanding energy efficiency in all aspects of their home and business energy use; this will carry over into purchase decisions which will foster a strong demand "green or sustainable" products (national). Clarification:

Straight forward from triggering question. Prices will affect energy efficiency.
Question: How that translate to greener energy products? Answer: Marketing of green products, increasing consumer awareness, will bring change by influencing them to purchase greener power.
Comment: Higher prices may not lead consumers to purchase greener power. Answer: Increase cost of energy may bring more competition in the high price market, making greener energy sources more competitive.
Comment: Green Power Program has been successful. Recent price increases are not reflected on recent budgets.
Comment: Renewable programs allows the ability for a consumer to lock in a price. Fossil fuel prices are market driven. So, greener products may be insulated from higher (or lower) prices from fossil sources.

(Trend 82) Price signals that reflect the real cost of electricity (energy) will drive consumers to demand energy efficiency in all aspects of their domestic and business decisions (regional). Clarification:

Price signals are going to make the difference in terms of getting the energy consumption affected.
Comment: Still back to the differences between energy efficiency and energy conservation. Energy efficiency has to be affordable as well, otherwise it will only result in conservation.

The argument advanced by the stakeholders, and the fact that these two trends are in a reinforcing cycle, is that price signal will affect energy efficiency by influencing the consumers to purchase green power. On the other hand, unless energy efficiency is affordable the price signals will impact positively energy conservation. The linkage between energy efficiency and energy conservation is made very transparent in this reinforcing cycle.

1.5.2.2) TRACK 2: Level III: Interest in "Green" (regional)

One trend is located at Level III of Track 2:

(Trend 97) The growing interest in "green" and or "pollution" taxes as a tax shift and how these concepts might have a role in energy conservation (regional).

Clarification:

> *Wouldn't want to go through this discussion without having green taxes discussed. Want to make sure that concept is out there.*
> *Q: Are you willing to modify the language to include tax shift?*
> *Statement was modified.*
> *C: There are opportunities to use tax system as an incentive to make products greener and for consumers to be efficient.*

The plausibility of this trend is enhanced, as briefly mentioned above, by the price volatility and signals. This trend also represents a very interesting linkage between the Energy Conservation (Track 1) and the Energy Efficiency (Track 2). According to the judgment of the majority of stakeholders the trend towards providing state regulatory and legislative incentives (Trend #69 at Level IV of Track 1) will enhance the plausibility of the growing interest in "green." The coupling between energy conservation and energy efficiency was perceived by the stakeholders, as indicated by this arrow of propagation of influence in Figure 1.

The growing interest in "green" trend propagates upward in the Map and enhances the plausibility of an increased interest in distributed generation at the national level, and an accelerating trend toward deployment of distributed resources at the regional level, as described by the trends located at Level II of Track 2.

1.5.2.3) TRACK 2: Level II: Distributed Generation and Green Building Consumption (national and regional)

The second reinforcing cycle of this track is located at Level II:

(Trend 47) Improvements in technology and increased prices will lead to more distributed generation (national). Clarification:

> *We are seeing more interest due to volatility in the market.*
> *Q: What is the scale you are referring to?*
> *A: From small to huge, e.g. server farms, all over the map.*

(Trend 112) There will be an accelerating trend toward increasing deployment of distributed resources (regional). Clarification:

> *Self-explanatory.*
> *Comment: I assume you are talking about environmentally preferable and non preferable generation? Answer: Yes, but preferably with greater environmental benefits whenever possible.*

The third trend in the Energy Efficiency track at Level II is regional:

(Trend 160) The emergence of the US green building council's green building rating system will have a profound influence on reducing the energy consumption of commercial and residential buildings in the Northwest. Clarification:

> *One of the things that have been occurring in architecture and engineering is the measurement of building performance. Green building rating system, such as Certified "Silver" rating. I'm proposing that it will have a high impact on building energy efficient buildings. In the next 5 years, this will be more than the norm than the exception.*

This trend addresses a "green building" rating system, which will have a profound influence or reducing the energy consumption of commercial and residential buildings in the Northwest. It is interesting to note that this particular trend impacts two of the trends in Track 3 both of which have to do with the lifestyle of the consumers at the national level around the year 2010. This is another example of the stream of plausibility enhancement propagating upward from energy conservation (Track 1), to energy efficiency (Track 2), and finally to the lifestyles of the future (Track 3).

1.5.3) TRACK 3: LIFESTYLES OF THE FUTURE

The area of Figure 1 shaded YELLOW contains five of the most important trends. These five trends display a propagation of plausibility from Level II up to Level I. All five trends belong to the national level of analysis. This track covers many of the trends that address lifestyle aspects of the consumers around 2010. At Level I there is a reinforcing cycle containing three national trends focusing on the impact of new technologies, such as smart meters and communication systems and sensors, that not only

will improve energy efficiency but will allow real-time control of energy consumption in commercial buildings and residences. The stakeholders judged that all three trends are mutually reinforcing in terms of the way the consumers will participate in the energy market place. Also at Level I there is a trend that explicitly addresses how people will embrace compact urban forms in order to minimize long commutes and increase the accessibility of alternative transportation systems, driven in part by high energy costs.

In particular the trends in this track at each level focus on the following themes:

Level II: Internet for E-commerce (national); and

Level I: Energy Market Place (national).

These specific trends and their inter-relations will be discussed in this section.

1.5.3.1) TRACK 3: Level II: Internet for E-commerce (national)

There is only one important trend in Level II that captures this theme, although stakeholders responding to the survey focused on the implications of the Internet in terms of the lifestyles of the future (see Appendices B and C). This trend is:

(Trend 150) Increasing use of Internet for e-commerce results in changing pattern of residential, commercial and transportation development patterns. Clarification:

> *Increasing use of Internet for e-commerce results in changing pattern of residential commercial and transportation development patterns*
> *I don't see the internet usage decrease. It will be used in several areas, which may change patterns in home residence and transportation patterns. We may need more airports and regional warehouses which may increase energy efficiency. Don't know if it is a positive or negative trend.*

This trend is located at Level II of the Map and is not influenced by any of the other trends located at lower levels. Stakeholders judged this trend as being in the most important subset on the basis of individual voting. However, as shown in the Map this trend is influential in terms of lifestyles and yet independent of all the other trends belonging to the energy conservation and energy efficiency tracks. As shown in Figure 1, this trend propagates upward and enhances the plausibility of the four other trends belonging to the lifestyles of the future track.

1.5.3.2) TRACK 3: Level I: Energy Market Place (national)

As we mentioned above there are three trends at this Level that form a "reinforcing cycle." These are:

(Trend 17) Integration of the communications and energy technologies into an energy web concept that will reduce costs, improve the environment, allow end users to participate in the energy marketplace, etc. (national). Clarification:

> *Mike Hoffman referred to this, mine is broader. John: Idea of integration between communication technology and energy integration. I want the energy web concept kept. Not new, but I would like to see the idea of the energy web captured.*
> *What is Energy web? Answer: Computers, smart chips, fiber optics, etc. used in the communication industry. A melding of energy industry and communications industry will help consumers understand the use of energy on their appliances, for example.*

(Trend 37) Energy usage and efficiency-related sensors and controls installed in commercial buildings, residences, and equipment such as HVAC will not only improve energy efficiency but allow real-time control of energy consumption (national). Clarification:

> *Doug: Substantial improvement in controls that will be sensitive to energy usage. This has been discussed. It can be deleted.*

(Trend 39) Smart meters and communications systems allow automated accounting for time of day rates, control of distributed generation, energy storage systems (national). Clarification:

> *Mike: A lot of this has been covered. It is what will happen. We think the energy web is the future so it can bring about benefits sooner.*
> *Q: Has this been covered?*
> *A: As a contribution it should stay because of communications and automated accounting. Without it these innovations will not take place.*
> *Q: Would it be fair to group ideas?*
> *NO.*
> *C: There is a set of conversations about how communications interfaces with utility and devices that interface with consumer.*
> *Q: When you weigh energy leverage do you mean both?*
> *A: Yes.*

C: There are two issues, management of energy load on the utility network and efficiency load of devices. Efficiency is gained but we are not attacking fundamental point. Also need to gain efficiency in demand.

A: This is tackling the role of efficiency to demand. The economic signal that comes back is "I don't choose to use this now", which is an economic efficiency choice. I think this is a process of incremental improvement in a lot of things over time. Stakeholders must choose how to implement it and this conversation helps decide how to do it.

A: How the device communicates doesn't matter. There is strong potential in power and use of utility efficiency.

Another important trend belonging to the Life-Styles of the Future track at Level I is:

(Trend 13) People embrace compact urban form as a way to reduce automobile use and build community. Public shift in tastes is driven in part by high energy costs associated with long commutes and accessibility of alternative transportation systems (national). Clarification:

Gail: I want to adopt this comment. It is important in overall energy use. We see populations moving to suburban and rural areas as telecommunication technologies change. It is not necessary to be in city. You can live in small communities and operate the same way. If you take urban nodes to these small communities you can reduce energy consumption. This impacts population growth in North America.

It is interesting to trace in more detail the influences that stakeholders perceived regarding this particular lifestyle trend. We already mentioned the linkage to the Internet, which is a direct linkage within the lifestyle track. However, as shown in the Map, the plausibility of the "compact urban form" trend is also enhanced directly by Trend #6 at Level II of the energy conservation track which addresses consumers concerns about their impacts on the environment. It is also enhanced by Trend #160 at Level II of the energy efficiency track which focuses on green buildings for reducing energy consumption. Here again we have an example of the linkages among the four tracks identified with different colors in the Plausibility Map in an effort to make the interpretation and the understanding of the Map more transparent to the reader of this report.

1.5.4) TRACK 4: ENERGY SUPPLY

The area of Figure 1 shaded RED contains three important trends. These three trends display a propagation of plausibility from Level II up to Level I. Two of the trends are national and one is regional. In accordance with the judgments of the stakeholders these three trends are not impacted by any of the other trends in Figure 1, and they do not impact any of the other trends. The two trends at Level II deal with the issue of integrity of the Bonneville Power Administration, and with the projected refusal of the regulators to allow energy price signals to flow through to consumers which, according the author will inhibit energy efficiency and demand responsiveness.

The two trends located at Level II are:

(Trend 34) The refusal of regulators to allow energy price signals to flow through to consumers will inhibit penetration of energy efficiency and demand responsiveness (national). Clarification:

Flip side of John's point. I'm the resident pessimist here. I don't see any particular movement by policymaking for passing price signals to the consumers. Those price signals are important to create demand responsive reactions. But there has not been stimulus for consumers today to respond to this.

Comment: I agree, and schizophrenia is a political issue. Talks about environment issues and the need to avoid price increases at the same time. They have to get over the issue of being scared to pass price signals to consumers.

Comment: Governor of CA says he can solve this problem in 30 seconds by increasing the price of energy.

Question: Are leaders facing the constituents? Vested interest of regulators? Answer: Utilities are resistant to use their consumer base for this.

Comment: Real politics in the ground, public officials and regulators. Consumer organizations reps say consumers did not vote for utility regulation.

Comment: There are ways to pass price signals to consumers that may not represent on price increases to consumers.

Comment: Stranded cost replacements. Consider the economic free market model may not apply completely to the utility area.

(Trend 90) The integrity of the Bonneville Power Administration, the foundation for energy and economic stability in the region, is at risk (regional). Clarification:

Base generating resource, under recurring threat. Something that we take for granted now and may or not be able to take for granted in the future.

Comment: Can we state that in a different way? Answer: That's fine. It is the basis for sustainability, integrity and stability in the region.

Comment: It is a change issue.

Comment: The word electricity has to be there.

The trend located at Level I is:

(Trend 26) A rush to build new electricity supply and to rationalize the transmission grid will encourage a return to energy invisibility – papering over the problematic nature of use (national). Clarification:

> *Cautionary note that what we are likely to see is that efficiency may mean installing smaller utilities and tuck them on the corners. Nine billion people in the planet will be a significant problem if it is translated only into efficiency. That tends to defect attention to the larger long term problem. Standard ecosystem deterioration are not to be avoided.*
>
> *Question: Is population growth driving all this? Answer: Population growth and increase in energy demand per capita are increasing problems. Focus on replacing supply to reduce short term supply problems will distract attention from a longer term problem.*
>
> *Question: could you express your concern on what you would like to see? Answer: Hope is that we could organize energy use in more effective ways and more modest impacts. Like ecological footprints in the planet. Continuing present rates of consumption may lead to unsustainable situations.*

The explanations and the commentary about these three trends make them very transparent to the reader. It is interesting to notice, however, that the stakeholders judged these three trends as being completely independent from the other 17 trends that are displayed graphically in Figure 1.

1.6) DEFINING THE REGIONAL ROLE

At this point the participants, especially those that could not participate on the third-day of the three-day workshop, were clustered in small teams of five or six members. They were asked to focus their small team deliberations on the following **triggering question**:

> ***"What short-term regional action options in your view will impact, in a desirable way, the anticipated effects of the national/regional trends as displayed in the Plausibility Map?"***

After deliberating as a small group, each small team was asked to make brief presentations of their views for the benefit of those participants that will be focusing their

work on a similar triggering question on the third day of the workshop.

These presentations were videotaped by the Facilitation Team and are available to the Alliance for analysis and follow-up action.

2) DAY 3: ACTIONS

2.1) METHODOLOGY: CONSTRUCTING ALTERNATIVE FUTURE SCENARIOS

2.1.1) Stage Two and Three: Gain a Better Appreciation of Possible Actions

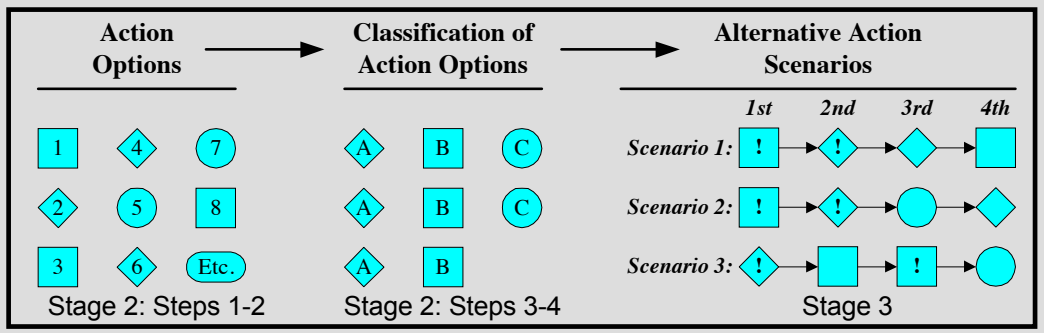
Having gained a deeper appreciation of the national and regional trends as articulated by different participants, and their cross-impacts as represented by the Plausibility Map, the group next moves on to consider what can be done to impact the anticipated trends in a desirable way. Stage Two proceeds in four steps:

1. Envision parts of the solution to the overall anticipated situation, with participants individually listing separate potential action options that address specific national/regional trends.
2. Clarify individual perceptions about each action option, in order to promote group learning.
3. Cluster Action Options based on their similarity and compile individual judgments (by voting) to further understand which action options are of higher comparative importance.
4. Use this collective understanding to identify the most important action options.

In Stage Three small teams of participants constructed alternative action scenarios. The teams achieve a working consensus on which actions to include in each team's proposed scenario and present it to the group.

Again, a diagram is helpful in seeing how the group moves from listing a wide variety of potential action options, to deepening their understanding of how these possible actions are similar to and different from each other, and finally choosing the most important action options and assembling them into alternative future scenarios.

Exhibit 4: Displaying the Products of the Steps of Stage Two and Three



Different groups will construct alternative futures. Some groups will prioritize those action options that address very deep rooted trends (designated by a ! in the diagram) as the first steps to be taken, whereas other groups might delay taking these actions until later. Having the groups explain their reasoning underlying their alternative provides another opportunity for group learning and advances the group towards making the wisest choices of what actions to pursue and how.

We now turn to the findings of the workshop regarding potential desirable actions at the regional level in the context of the national and regional trends and events that were represented in the Plausibility Map discussed earlier in this report.

2.2) FINDINGS: THE ACTION OPTIONS

At this point of the Agenda the participants initiated the implementation of the Design Stage of the methodology. To perform this task they were asked on the third day of the workshop to study the Plausibility Map of national and regional trends, and to respond to the following **triggering question:**

> ***"What are short-term action options which, if we adopt, will impact in a desirable way the anticipated effects of the national/regional trends as displayed in the Plausibility Map?"***

The proposals of the participants were recorded and displayed on the wall of the facilitation room in preparation for clarification of their meanings. A similar process for the generation and clarification of the option statements was employed as the one used for the generation and clarification of national and regional trends.

Participants generated and clarified ninety-one action options, and these are listed in Table 2 in Appendix F.

> *Note to the reader—if you were not a participant in the workshop* ***you should at least scan Appendix F*** *in order to appreciate the variety of options contributed by the participants before continuing.*

A member of the facilitation team prepared a preliminary set of clusters for the action options according to perceived similarities by responding to questions according to the following format:

> **"In the context of designing a regional alternative future for the adoption of energy efficiency, does:**
>
> **(Option-X)**
>
> **Have significant characteristics in common with (is similar to):**
>
> **(Option-Y)?"**

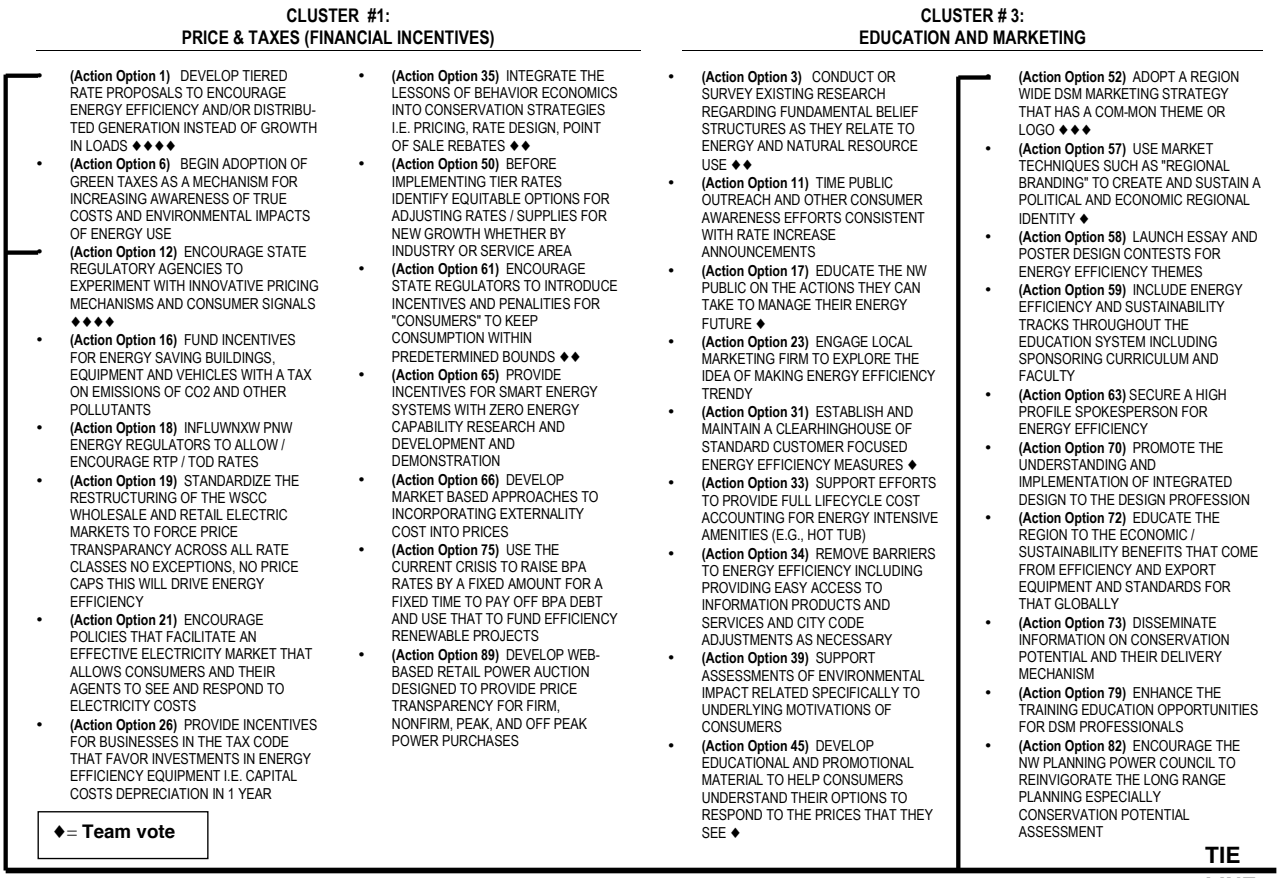
The resulting clusters form the basis for the categorical view of action options that was provided to the workshop participants. The pattern was also displayed on the walls of the facilitation room. Participants were engaged in developing names that would characterize the overall intent of each cluster.

Using the categorical view of stakeholder explanations as captured in Table 2 of Appendix F, participants then voted for the action options they judged to be most important (see Table 3 for options that received 2 or more votes). Four teams of stakeholders were then asked to consider how they will combine action options across all categories to impact in a desirable way the national and regional trends presented in the Plausibility Map (see Figure 1). They presented their selections as "alternative regional futures" to the group, also explaining how their alternative will address some of the trends of Figure 1.

Eight out of a total of ninety-one action options were selected by 3 or more teams. These eight are included in the consensus alternative and are shown in **Table 3: Voting Results on Action Options for Impacting in a Desirable Way the Plausibility Map** (see page 8). Note that all five of the most important options from the individual votes (see Table 3) have been selected by three or more teams in their team alternative. Two options that received less than two individual votes, namely Action #7 and Action #24, are included in the Consensus Regional Future because three of the four teams selected them in their team alternative. The eight action options are also presented in the context of the affinity clusters as **Figure 2: Consensus Regional Future Based on Small Teams** (see pages 38 to 41). This Figure displays graphically the eight action options selected for the Consensus Regional Future which are connected to the "TIE LINE." By studying the Figure the reader will appreciate the number and diversity of options from which the participants made choices of inclusion.

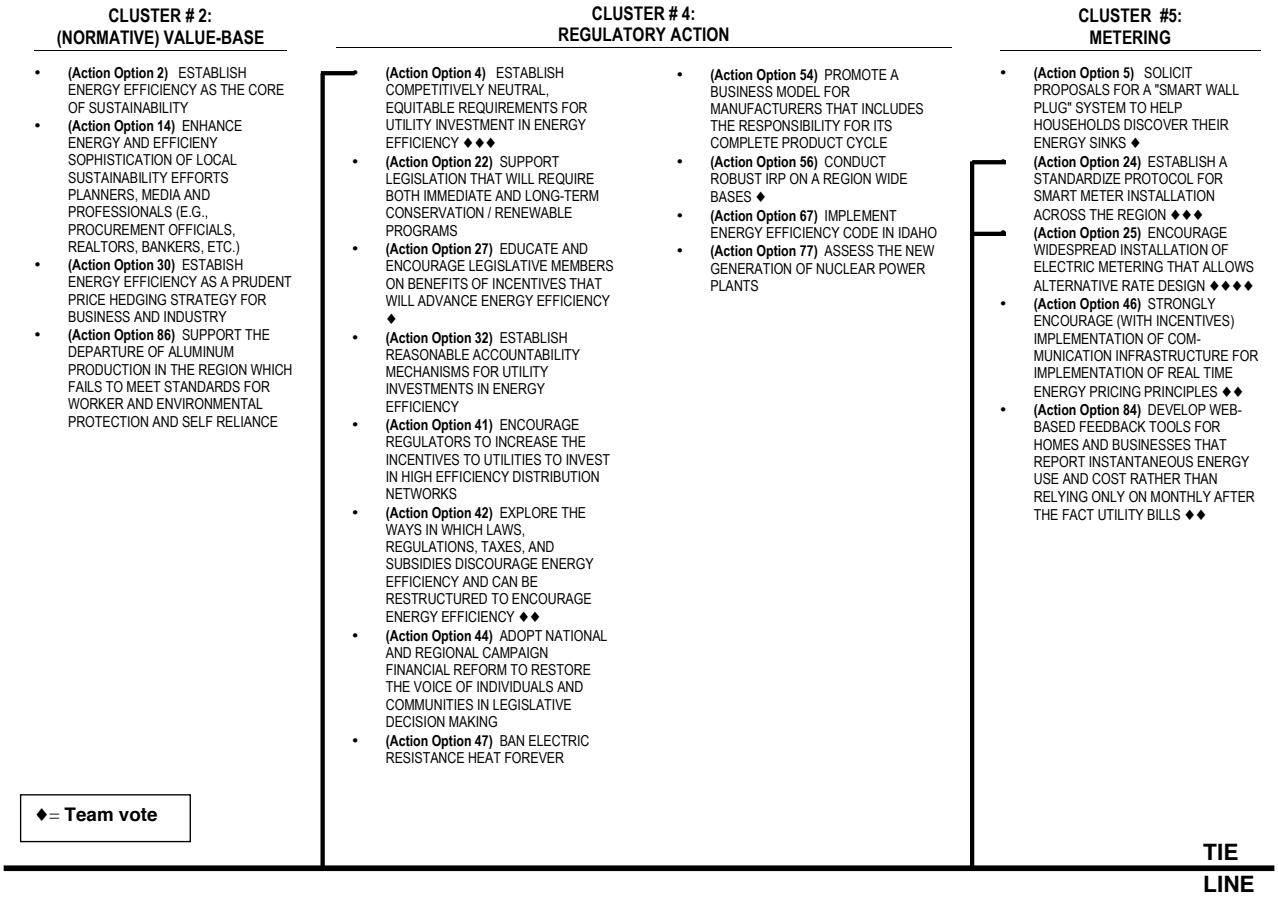
In this section, we discuss selected action options, their clarifications, and their importance as indicated by the day's voting. The discussion will concentrate on one cluster at a time, emphasizing the most preferred action options within the cluster. Where relevant, we will analyze the relationships to the Plausibility Map.

Figure 2: Consensus Regional Future Based on Small Teams



Produced by the participants at the NEEA Workshop – March 16, 2001

Figure 2: Consensus Regional Future Based on Small Teams



Produced by the participants at the NEEA Workshop – March 16, 2001

Figure 2: Consensus Regional Future Based on Small Teams

CLUSTER #6: DISTRIBUTED GENERATION INFRASTRUCTURE

- **(Action Option 7)** REVIEW BARRIERS TO DISTRIBUTED GENERATION AND TRY TO REDUCE OR ELIMINATE ♦♦♦
- **(Action Option 20)** PROVIDE COMPREHENSIVE DEVELOPMENT AND DEPLOYMENT NEWS AND INFORMATION ON DER AND DSM AND DER DSM LINKAGE
- **(Action Option 29)** PROVIDE AN AUTHORIATATIVE ANALYSIS OF THE TRANSMISSION AND DISTRIBUTION BENEFITS AND THE ENERGY COST BENEFITS OF DISTRIBUTED GENERATION ♦♦
- **(Action Option 37)** INVEST IN SMALL - SCALE, HYPER-EFFICIENT ENERGY MACHINES
- **(Action Option 40)** ENCOURAGE COMPLETION AND ADOPTION OF THE IEEE STANDARD FOR INTERCONNECTION OF DG SYSTEMS WITH THE UTILITY GRID ♦♦
- **(Action Option 48)** INCREASE DEPLOYMENT OF BIOMASS AND BIOFUELS GENERATION HARDWARE ♦
- **(Action Option 49)** ESTABLISH EQUITABLE INTERFACE RULES AND PRACTICES FOR INSTALLATION OF NONUTILITY METERING, CONTROL AND DISTRIBUTED GENERATION EQUIPMENT ♦
- **(Action Option 91)** DEPLOY US NUCLEAR NAVY TO WESTCOAST PORTS -- PLUG SHIPS INTO THE GRID FOR IMMEDIATE MARKET TRANSFORMATION TO DISTRIBUTE GENERATION

♦= **Team vote**

CLUSTER #7: PACIFIC NORTHWEST ECONOMIC DEVELOPMENT

- **(Action Option 8)** PROVIDE INCENTIVES TO ATTRACT COMPANIES TO THE NW THAT MAKE ENERGY EFFICIENCY PRODUCTS / GREEN PRODUCTS ♦
- **(Action Option 9)** THE NW IS RECOGNIZED AS THE "SILICON VALLEY" OF REVOLUTIONARY, DISTRIBUTED ENERGY TECHNOLOGY
- **(Action Option 13)** PROMOTE THE FORMATION OF A REGIONAL FOURM TO ATTRACT COMPANIES INTO THE REGION WHO WILL PROVIDE ENERGY EFFICIENCY PRODUCTS AND SERVICES ♦
- **(Action Option 69)** CONVENE ENERGY EFFICIENCY ROUNDTABLE FOR MAJOR ENERGY USING INDUSTRIES TO AGREE ON ENERGY EFFICIENCY GOALS AND JOINT PROJECTS (USE GOVENORS AND OTHERS TO CONVENE CEOs & CFOs)
- **(Action Option 81)** ENCOURAGE CONSUMERS TO MOBILIZE TO ATTRACT ENERGY EFFICIENT INDUSTRY TO THE REGION

CLUSTER #8: TOOLS

- **(Action Option 10)** TO CREATE A ROBUST FINANCIAL MODEL THAT BUILDING OWNERS AND MANAGERS CAN USE TO BRIDGE INITIAL CAPITAL COSTS WITH THOSE COSTS ASSOCIATED WITH MAINTENANCE OPERATIONS I.E. INTERNAL RATES OF RETURN ♦
- **(Action Option 15)** USE PUBLIC CREDIT TO CREATE A BUYING / PURCHASE GUARANTEE COOPERATTIVE TOOL FOR REGIONAL HARDWARE PURCHASES ♦♦♦
- **(Action Option 38)** PROMOTE AND INCENT THE INTEGRATION OF THE US GREEN BUILDING COUNCILS LEED PROGRAM TO BUILDING OWNERS AND DESIGN PROFESSIONALS ♦
- **(Action Option 43)** LEVERAGE CONSUMER DEMAND PULL BY TARGETING LARGE AMOUNTS OF CAPITAL (SYSTEM BENEFIT CHARGE REVENUES) ON SELECTED SEQUENTIAL HARDWARE SOLUTIONS ♦
- **(Action Option 51)** ESTABLISH STRATEGIC PARTNERSHIPS WITH THE BUSINESS COMMUNITY AND CALL UPON ITS INFLUENCE TO AFFECT LEGISLATION
- **(Action Option 53)** DEVELOP COLLABORATION BETWEEN THE ALLIANCE AND THE OREGON ENERGY TRUST ♦♦
- **(Action Option 55)** IDENTIFY AND PROMOTE EFFICIENT ALTERNATIVES TO SUPPORT THE INTERNET INFRASTRUCTURE
- **(Action Option 60)** ESTABLISH A CLEAR AND SUBSTANTIAL ROLE FOR BPA IN INVESTING IN ENERGY EFFICIENCY
- **(Action Option 62)** RAISE THE BAR ON STATE ENERGY CODES ♦
- **(Action Option 64)** DEVELOP A REGIONAL ENERGY EFFICIENCY / GREEN PRODUCT CERTIFICATION PROGRAM (USING JOHN PYRCH'S LOGO) ♦
- **(Action Option 68)** RESEARCH AND DEVELOP EFFICIENT PRODUCTS AND SERVICES TAILORED TO THE COMPACT URBAN FORM ♦
- **(Action Option 71)** CONDUCT R&D ON A NEW GENERATION OF RETROFIT TECHNOLOGIES AND STIMULATE A REVITALIZED COMPETENT RETROFIT MARKET ♦
- **(Action Option 76)** R&D WITH REGIONAL RESOURCES TO DEVELOP A NEW GENERATION OF CLOTHING THAT ENABLE A WIDENING OF THE HUMAN COMFORT BAND
- **(Action Option 80)** ESTABLISH A REGIONAL BULK PURCHASING FOR COMMONLY USED ECMs AND RENEWABLE HARDWARE ♦♦
- **(Action Option 83)** DEVELOP NEW WAYS TO USE THE INTERNET TO SELL ENERGY EFFICIENCY PRODUCTS
- **(Action Option 85)** EMPHASIZE THAT COMPLEX RATE DESIGNS WILL NOT MOTIVATE ENERGY EFFICIENCY IN THE MANY CASES IN WHICH THE BILL PAYER IS NOT THE DECISION THE MAKER
- **(Action Option 90)** CREATE A FINANCIAL HEDGE FOR THE REGION WITH ENERGY EFFICIENCY AND RENEWABLES AS THE BASIS FOR HEDGING

TIE LINE

Produced by the participants at the NEEA Workshop – March 16, 2001

Figure 2: Consensus Regional Future Based on Small Teams

CLUSTER #9:

- **(Action Option 74)** PROMOTE LIGHT RAIL TRANSPORTATION SYSTEMS INTER CITY RAIL AS WELL
- **(Action Option 78)** OPPOSE ALL LIGHT RAIL SYSTEMS

CLUSTER #10:

- **(Action Option 28)** ENCOURAGE RESPECT OF THE COMPETITORS FOR ENERGY FOR THE LEGITIMATE NEEDS OF EACH OTHER

CLUSTER #11:

- **(Action Option 36)** ESTABLISH A REGIONAL ENTITY (NEEA LIKE) TO PROMOTE ENERGY EFFICIENCY AND RENEWABLE RESOURCE RESEARCH AND DEVELOPMENT ♦

CLUSTER #12:

- **(Action Option 87)** DEVELOP A STRATEGY THAT WILL ADDRESS THE NEEDS OF LOW / FIXED INCOME CITIZENS IN A HIGH ENERGY COST ENVIRONMENT

♦= **Team vote**

2.2.1) Cluster 1: Price and Taxes (Financial Incentives)

Action Option 1: D*evelop tiered rate proposals to encourage energy efficiency and/or distributed generation instead of growth in loads.* Clarification:

> *A: amended the statement. The tiered rate implies any type of difference in rate(i.e. block rates, tiered rates to wholesale customer, industrial customer or residential customer.)*
> *C: Proposals could initiate actions for energy generation.*

Individual votes: 4. Scenarios: All 4 teams

This action option is one of the three that all four team included in their scenarios. It received four individual votes.

The second action option from this cluster that is included in the Consensus Regional Future is:

Action Option 12: E*ncourage state regulatory agencies to experiment with innovative pricing mechanisms and consumer signals.* Clarification:

> *This is self-evident. Another thought here is the idea of pushing deregulation at the retail level.*

Individual votes: 5. Scenarios: All 4 teams

This Action Option is ranked among the top five in Table 6 and was included in the scenarios proposed by all four teams.

2.2.2) Cluster 2: Value-Base (Normative)

This cluster, which was named by the participants as Normative or Value-Base, contains four action options. All of these four received less than two votes during the individual voting by the participants. None of these options received any team votes in the generation of team alternatives. And yet at least two of these options focus on the issue of sustainability which was important in the survey responses and also was surfaced during the construction of the Plausibility Map as a deep driver trend, namely Trend #128 (see Figure 1). The two action options included in this cluster that could impact Trend #128 in a desirable way are:

Action Option 2: E*stablish energy efficiency as the core of sustainability.*

Clarification:

> *If indeed there is a section of the public that wants to embrace sustainability in their purchases, businesses, etc., the issue is that right now energy efficiency is a small component of it. It should be the core value of it to move energy efficiency along.*

Individual votes: 0. Scenarios: 0 teams

Action Option 14: E*nhance energy and efficiency sophistication of local sustainability efforts planners, media and professionals (e.g., procurement officials, realtors, bankers, etc.).* Clarification:

> *Consumer and small business get information have to trust sources. This lacking and quite uneven in the region. Give them the competencies and tools to think about the problems discussed here. E.g. talking about global warming on the weather news, etc*

Individual votes: 0. Scenarios: 0 teams

It is the contention of the authors of this report that the implementation of the above to action options will have a direct desirable impact on the deep driver of the Plausibility Map, and hence will indirectly impact fifteen of the other trends presented in Figure 1. The statement for Trend #128 is:

(Trend-128) ***Reducing the gap of energy consumption per capita among countries will increase the national need to save energy in whatever way there is.***

Because these two action options in the Value-Base cluster address one of the main concerns of the deeply leveraging Trend #128, they may warrant further study by the Portfolio Committee of the Alliance.

2.2.3) Cluster 3: Education and Marketing

This clusters contains nineteen action options which is over 20% of all the actions proposed by the participants. Of the nineteen options only one was selected by three teams and hence has been included in the Consensus Regional Future presented in Figure 2:

Action Option 52: ***Adopt a region wide DSM marketing strategy that has a common theme or logo.*** Clarification:

> *There is a lot of potential synergy out there, if everybody is together in a common market plan. A theme or logo could be very powerful and less confusing to the customer*

Individual votes: 5. Scenarios: 3 teams

2.2.4) Cluster 4: Regulatory Action

This cluster contains twelve action options. Only one was selected by three teams, namely:

Action Option 4: ***Establish competitively neutral, equitable requirements for utility investment in energy efficiency.*** Clarification:

> *The strongest example of this, at this point, is the public benefit charge in Oregon, which is in the way of being implemented, maybe in 18/19 other states as well. It is not the only way to do it, but it is important.*

Individual votes: 7. Scenarios: 3 teams

This option garnered impressive support, receiving the highest number of votes in the individual voting (see Table 3).

2.2.5) Cluster 5: Metering

This cluster contains less than 5% of the total number of action options proposed by the participants. One of the five action options assigned to this cluster was selected by three teams (Action #24), and the second (Action #25) by four teams:

Action Option 24: ***Establish a standardized protocol for smart meter installation across the region.*** Clarification:

> *A lot of different vendors are developing smart systems but are not talking to each other. There is a need for some standardization.*
>
> *Comment: What about promoting competition among them? Answer: this is more generic than that.*

Individual votes: 0. Scenarios: 3 teams

Action Option 25: ***Encourage widespread installation of electric metering that allows alternative rate design.*** Clarification:

A: need infrastructure to support rate design. Test metering systems to select one that will answer question. Didn't say tiered rates but an alternative rate design.

Individual votes: 6. Scenarios: 4 teams

It is clear from the voting results that Action Option #25 received a lot of support from the workshop participants both in terms of individual votes and team scenario votes.

2.2.6) Cluster 6: Distributed Generation Infrastructure

The only action option selected by three teams in this cluster, even though it did not receive any individual votes is:

Action Option 7: ***Review barriers to distributed generation and try to reduce or eliminate. .*** Clarification:

Self-explanatory.

Individual votes: 0. Scenarios: 3 teams

2.2.7) Cluster 7: Pacific Northwest Economic Development

This cluster contains five options. Three of the five received 3 individual votes (see Table 3). Two received one vote each in the team scenarios. Because of the theme of this cluster, and in the context of the survey responses that allude to sustainable economic development for the region, we deem appropriate to list these three options in this report for additional consideration by the Alliance, even though they have not been included in the Consensus Regional Future. They are:

Action Option 8: ***Provide incentives to attract companies to the NW that make energy efficiency products / green products.*** Clarification:

In Oregon the tax incentives program aims at getting high tech companies to establish here. It could be directed to bring companies that produce energy efficiency products, or energy efficient companies.

Individual votes: 3. Scenarios: 1 team

Action Option 9: ***The NW is recognized as the "silicon valley" of revolutionary, distributed energy technology.*** Clarification:

A: context is what can be done on energy efficiency. Given the challenge facing with 3000 mw region wide, a successful conservation program might achieve 1000 mg of the problem. May be hydro devaluation and a doubling of population growth. Must be something fundamentally new. Need to invest in a new technology that can resolve it . well be left with a complicated conversation especially when crises leaves. There are machines that moved digital information from central machines to laptops the same type of revolution is possible but we must invest research development, tax and codes that will move the revolution faster. Needs to be focused on soon lots of available investment resources. Needs to be coordinated . use half of money to move forward.

C: this is a statement of outcome

What short term regional action options.

This is accomplished by unequal investment in research development man

Rapid changes in rate structures codes

Tax incentives for business and consumers.

Increases computing capacity. Consumers needed it. Electricity is more central to lives.

People will take care of the movement toward change.

C: If that were a success could we eliminate central style plants like EPA?

A: Yes,

C: If you take 10 yrs to do it you have energy savings. You must create a clear path to get technology to market then let market take care of growth.

Individual votes: 3. Scenarios: 0 teams

Action Option 13*: **Promote the formation of a regional forum to attract companies into the region who will provide energy efficiency products and services.***

Clarification:

A: The Pacific northwest had many smart companies this is an opportunity for them to work together. How do you bring them together to take a lead. This regional forum might attract companies into region, also attract univ. to provide intellectual background, and companies to provide products and services. Energy efficiency is more that smart devices. How to get devices to interact with each other and customers

Individual votes: 3. Scenarios: 1 team

2.2.8) Cluster 8: Tools

This cluster contains seventeen options. In terms of the number of options it is ranked second together with Cluster #4: Regulatory Action, after Cluster #3: Education and Marketing which has nineteen options. The action option that was selected by three

teams is:

Action Option 15: ***Use public credit to create a buying / purchase guarantee cooperative tool for regional hardware purchases.*** Clarification:

> *A: Suggestion that instead of relying on individuals to make individual .decisions that have capital accumulation constraints, aggregate public credit to commit to min. purchase of hardware that could be deployed broadly. EX. If demand for air service demand is unknown. If seats paid by paying g passengers community doesn't pay but if not, they pay. Use public credit to commit to 1000 horizontal access washers and commitment to using to customers. If cant sell public credit has to eat cost until inventory is old*

Individual votes: 2. Scenarios: 3 teams

2.2.9) Cluster 9: Light Rail

Two options were assigned to this cluster (see Figure 2). None of these options received any individual or team scenario votes.

2.2.10) Cluster 10: Energy Competitors

One option was assigned to this cluster (see Figure 2). It did not receive any individual or team scenario votes.

2.2.11) Cluster 11: NEEA Like Entity

One option was assigned to this cluster (see Figure 2). It did not receive any individual or team scenario votes.

2.2.12) Cluster 12: Low/Fixed Income Citizens

One option was assigned to this cluster (see Figure 2). It did not receive any individual or team scenario votes.

3) ALTERNATIVE REGIONAL FUTURE SCENARIOS

3.1) METHODOLOGY: SCENARIO CONSTRUCTION

The participants were arranged in four small groups based on maximizing the diversity of perspectives within each team. The teams deliberated on selecting actions that they would include in a prospective Regional Alternative Future. The Clusters of Action Options they had developed in the large group, during the previous step were provided as a working template. The groups were instructed to first consider the inclusion of each of the one dozen action options that had received at least three individual votes (see Table 3 on page 8). In the Alliance workshop nine of the options that received three or more votes were not selected by three or more team and hence are not included in the Consensus Regional Future. On the other hand, three teams selected Option #15, which received two individual votes, and also selected Options #24 and #7, which did not receive any individual votes. This phenomenon happens frequently in group work with this methodology because it promotes evolutionary learning in terms of meaning and judgments of saliency for the observations made by the participants.

The groups are then coached in developing narrative descriptions of their Alternative Regional Futures. The groups present their Futures to the full set of participants. The groups typically employ a narrator, two people using the wall displays of the Plausibility Map and the Clusters of Action Options, and one person with a Laser Pointer to guide the participants through the team scenario from display to display.

3.2) FINDINGS: SMALL TEAM REGIONAL FUTURES

The Consensus Regional Future was developed as a composite of small group work by four interdisciplinary teams, and appears in Figure 2. The summary of their selected actions appears in Table 3 (see page 8). Eight actions were selected by three or more of the four teams. According to the tally of the team selections they are Actions #1 and #12 from Cluster #1: Price & Taxes , Action #52 from Cluster 3: Education and Marketing, Action #4 from Cluster #4: Regulatory Action, Actions #24 and #25 from Cluster #5: Metering, Action #7 from Cluster #6: DG Infrastructure, and Action #15 from

Cluster #8: Tools. (The reader is directed to Appendix F to review the clarification of the intent of these action options as articulated by the participants.) The overriding intent of the team action scenarios most directly targeted the theme of Energy Efficiency track (see Green Area in the Plausibility Map, Figure 1). On account of the location of the trends belonging to the Energy Efficiency track at Levels IV, III, and II, their influence will propagate along the arrows and enhance the plausibility of other trends located at Level I.

As can be seen by looking at the Plausibility Map, some of these trends at Level I belong to the tracks of Energy Conservation (blue color) and Life-Styles of the Future (yellow color). The interpretation of this finding is that by implementing the Consensus Regional Future the PNW is taking actions to have desirable impacts on the Energy Efficiency track of the Map, but because of the linkages of this track with the other two tracks of the Map, it is very plausible that the energy conservation and life-style trends of Figure 1 will come to pass in the region.

Actions #1, #12 and #25 received unanimous endorsement by the four teams (see Table 3 on page 8). These three Actions also stood out in the presentation of the team scenarios. These actions appear to have the highest priority in the judgment of the majority of participants in terms of leveraging the adoption of energy efficiency in the PNW, which will in turn enhance the plausibility of life styles for the region that are compatible with the ethic of sustainability and energy conservation as shown graphically in the Plausibility Map of Figure 1.

4) CONCLUSIONS

The last few years have seen a growing recognition of the requirement to study the efficient use of energy. The vision of the Northwest Energy Efficiency Alliance (Alliance) is to create a culture in the Pacific Northwest in which the efficient use of energy is a core value among consumers and businesses. The rationale for this, as stated in the Alliance's strategic plan, is that energy savings resulting from the marketplace embracing energy-efficient products and services will lower the long-term cost and environmental impact of the region's electricity system, resulting in a healthier economy and a cleaner environment. Additional benefits resulting from Alliance efforts, such as increased production or reduced waste, can help Northwest businesses become more competitive.

The findings of this report, in terms of the eight consensus action options included in the Consensus Regional Future (see Figure 2), are clearly supportive of the mission of the Alliance. Implementation of these actions will impact directly in a desirable way the trends that the stakeholders identified as belonging in the Energy Efficiency track (Track 2), and will consequently be supportive of the Alliance's mission. These same action options, because of the linkages between the Energy Efficiency track and the Lifestyles track, as shown graphically in Figure 1, will also have indirect desirable impacts in terms of social sustainability as manifested by the lifestyles adopted by the consumers of the region. They will embrace a compact urban form as a way to reduce automobile use and build community.

These eight actions belong to six clusters or categories as shown in Figure 2 (see pages 38-41). Those categories and actions are:

Cluster # 1: Price & Taxes

- **Action Option 1: D*evelop tiered rate proposals to encourage energy efficiency and/or distributed generation instead of growth in loads.***
- **Action Option 12*: Encourage state regulatory agencies to experiment with innovative pricing mechanisms and consumer signals.***

Cluster # 3: **Education and Marketing**

- **Action Option 52:** ***Adopt a region wide DSM marketing strategy that has a common theme or logo.***

Cluster # 4: Regulatory Action

- **Action Option 4***: Establish competitively neutral, equitable requirements for utility investment in energy efficiency.*

Cluster # 5: Metering

- **Action Option 24***: Establish a standardized protocol for smart meter installation across the region.*
- **Action Option 25***: Encourage widespread installation of electric metering that allows alternative rate design.*

Cluster # 6: Distributed Generation Infrastructure

- **Action Option 7:** ***Review barriers to distributed generation and try to reduce or eliminate.***

Cluster # 8: Tools

- **Action Option 15:** ***Use public credit to create a buying / purchase guarantee cooperative tool for regional hardware purchases.***

However, in the opinion of the authors of this report, the Alliance should revisit some of the other options which were proposed by the stakeholders at the workshop but were not included in the Consensus Regional Future. This opinion is based on the stakeholder identification of Trend #128 as the deep driver of the Plausibility Map.

In particular, two action options that were classified by the stakeholders in **Cluster 2: Value-Base (Normative),** might need to be revisited by the Alliance in light of their desirable impact on **Trend #128: Reducing the gap of energy consumption per capita among countries will increase the national need to save energy in whatever way there is.**

These two options are:

- **Action Option 2***: Establish energy efficiency as the core of sustainability.*
- **Action Option 14***: Enhance energy and efficiency sophistication of local sustainability efforts planners, media and professionals (e.g., procurement officials, realtors, bankers, etc.).*

In addition, there are three other options that even though they were not included in the Consensus Regional Future by the stakeholders, might be of interest to the Alliance, especially in the light of some of the trends identified in the survey results. These three belong to **Cluster 7: Pacific Northwest Economic Development** and they are:

- **Action Option 8:** ***Provide incentives to attract companies to the NW that make energy efficiency products / green products.***
- **Action Option 9:** ***The NW is recognized as the "silicon valley" of revolutionary, distributed energy technology.***
- **Action Option 13:** ***Promote the formation of a regional forum to attract companies into the region who will provide energy efficiency products and services.***

Future collaborative regional action to promote the adoption of energy efficiency in the Pacific Northwest should give serious consideration to the eight consensus actions belonging to the six categories identified above. It is also important to appreciate the dedication of the participants in addressing this complex issue from a variety of perspectives through a very systematic and systemic process for dialogue.

APPENDICES

APPENDIX A

Participants

List of Participants

Gail Achterman, is the Executive Director of the Deschutes Resources Conservancy and a member of the Oregon Transportation Commission.

Suzanne Apple is Vice President of Community Affairs for The Home Depot. Her responsibilities include coordinating the store's

Environmental Council.

Richard Beam is Regional Utilities Manager for the Providence Health System. He oversees the utilities management program serving Providence hospitals and facilities in Alaska, Washington, Oregon and California.

Chris Bray is a partner at Hyde, Wetherell, Bray and Haff. Under former Idaho Governor Phil Batt, he headed a study on the effects the changing energy industry would have on Idaho consumers and small businesses.

Alec Burden is Managing Director of Distribution Access Management at PacifiCorp.

Chris Calwell is a Principal at Ecos Consulting and responsible for the company's research into new energy efficiency and environmental initiatives.

Tom Catania, Jr is Vice President of Government Relations for Whirlpool Corporation. He represents the company's interests in U.S. and global government-industry relations.

Pat Chandler is Manager of Community Affairs for The Home Depot.

Chris Coursen is President of The Coursen Group, a Washington, DC-based public affairs firm specializing in telecommunications.

Carel C. DeWinkel is an independent energy consultant on energy efficiency and renewable energy resources.

Angus Duncan is the President of the Bonneville Environmental Foundation, which funds new renewable energy generation and watershed restoration activities.

Thomas Flanagan is Program Manager at the Massachusetts Strategic Environmental Business and Technology Center.

Syd France is Manager of Energy Efficiency Services at Puget Sound Energy and a member of the Alliance Board of Directors.

Margie Gardner is Executive Director of the Alliance, a non-profit group working to make energy-efficient products and services affordable and available in the marketplace.

Nathan Good is Director of Green Building Services and provides energy-efficient, environmental design consulting services for commercial and institutional projects.

Jeff Harris is manager of project development at the Alliance. Formerly, he was a senior conservation analyst with the Northwest Power Planning Council.

Brian Hedman is Manager of Demand-Side Management Policy at PacifiCorp and Chair of the Alliance Board of Directors.

Mike Hoffman is the lead for International Marketing at the Bonneville Power Administration and is involved in new technology initiatives, as part of the BPA Technology Tracking Team.

Ken Keating is Coordinator of Market Transformation at the Bonneville Power Administration and a member of the Alliance Board of Directors.

Tom Kelly is President of the Neil Kelly Designers/Remodelers in Portland, Oregon. Neil Kelly is a remodeling firm involved in all aspects of home improvements.

Thomas Kerr is currently the Chief of the Environmental Protection Agency's Energy Supply and Industry Branch, a group that promotes energy efficiency to reduce greenhouse gas emissions.

Joe Kilpatrick is Project Manager for the Public Power Institute at the Tennessee Valley Authority. Prior to that, he worked on TVA's research and development programs.

Harold Linstone, Ph.D., is Professor Emeritus of Systems Science at Portland State University and previously was a planning expert at Hughes Aircraft Company and Lockheed Aircraft Corporation.

Randy Lobb is the Administrator of Utilities at the Idaho Public Utilities Commission and an ex officio member of the Alliance Board of Directors.

Loren Lutzenhiser is Associate Professor of Sociology and Rural Sociology at Washington State University where he teaches community studies, the sociology of technologies and complex organizations.

Larry Magliocca, Ph.D., is a Professor in the Education Services and Research Department at Ohio State University. He has also served as executive director for the Center for Special Needs Populations.

Terry Morlan, Ph.D., is Manager of Economic Analysis at the Northwest Power Planning Council where he conducts regional economic forecasts, electricity demand forecasts and forecasts of energy prices.

Darlene Nemnich is Energy Efficiency Coordinator at the Idaho Power Company and a member of the Alliance board of Directors.

William P. Nesmith is Administrator of the Conservation Division of the Oregon Office of Energy, which offers energy efficiency and renewable resource programs for Oregon homeowners, businesses and public institutions.

Cyrus Noë is Chief Executive Officer of Energy NewsData and editor-in-chief and publisher of Clearing Up and California Energy Markets.

Douglas A. Oglesby is Vice President and General Counsel at Chevron Energy Solutions where he is responsible for the company's governmental and regulatory affairs.

Steve Ottenbreit is Manager of Technical and Financial Services at the Snohomish County Public Utility District No. 1 and a member of the Alliance Board of Directors.

Hasan Özbekhan, Ph.D., is Professor Emeritus at the Wharton School of Management at the University of Pennsylvania.

Sara Patton is Director of the Northwest Energy Coalition, which promotes energy conservation and renewable energy resources, consumer and low-income protection and fish and wildlife restoration.

Randall Pozdena, Ph.D., is managing director of ECONorthwest, an economic consulting firm. He has extensive experience in banking and monetary policy.

John Pyrch is the Acting Vice President for Energy Efficiency at Bonneville Power Administration. The agency is currently designing and implementing several new demand side management, conservation and renewable resource initiatives.

Jack Robertson is former Acting Administrator and Deputy Administrator of the Bonneville Power Administration. Retiring in 1999, Mr.. Robertson just finished traveling around the world.

Sam Sirkin is Chief Executive Officer of FatEarth.com, an e-business that serves as a broker connecting buyers and sellers of sustainable goods and services.

Denise Swink is Deputy Assistant Secretary for Industrial Technologies at the U.S. Department of Energy where she manages a program to improve resources efficiency and fuel-flexibility at industries.

Reynaldo Treviño-Cisneros is a policy advisor to Mexico's President Vincente Fox. Previously, he was director of the Center for Strategic Studies at the University of ITESM in Monterrey, Mexico.

Dick Watson is Director of the Power Planning Division at the Northwest Power Planning Council, where he is responsible for analysis of regional electricity policies issues and Northwest electricity markets.

Edward Wisniewski is the Deputy Director of the Consortium for Energy Efficiency, located in Boston, MA.

Susan Witt is Executive Director of the E. F. Schumacher Society, a nonprofit organization that promotes and supports grassroots initiatives to develop more self-reliant regional economies.

The Future of Electric Energy Use in the U.S. and Pacific Northwest

Workshop Participants

March 14, 2001

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Observers

Chris Calwell, Carel DeWinkel, Joe Kilpatrick

Northwest Energy Efficiency Alliance

Ben Bronfman, Stacey Hobart, Lis Saunders

Inquiry Design and CWA Facilitation Team:

Workshop Coordinator:	Diane S. Conaway
Lead Facilitator:	Aleco Christakis
Rapporteurs:	Cesar D'Agord, Kevin Dye, Caroline Coston
Application Designer:	Kevin Dye

The Future of Electric Energy Use in the U.S. and Pacific Northwest

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Workshop Coordinator: Diane S. Conaway
Lead Facilitator: Aleco Christakis
Rapporteurs: Cesar D'Agord, Kevin Dye, Caroline Coston
Application Designer: Kevin Dye

APPENDIX B

Summary of Web-based Survey Instrument

The Future of Electric Energy Use In the U.S. and Pacific Northwest Consumer Trends and Scenarios 2005-2015

Note: This survey will only work properly with the following browsers; Microsoft Internet Explorer 4.0 or later and Netscape Navigator 4.0 or later. If you experience technical difficulty with the survey please send an email to one of the following addresses; mzamecnik@dataworxtech.com or rkerestesy@dataworxtech.com If you have questions regarding the content of the survey please send an email to : KMCDye@aol.com.

This briefing orients the respondent to the contexts of the survey.

The purpose of this survey is to:

- Engage respondents in generating insights concerning the development of a future project investment portfolio in market transformation to bring about a lasting increase in energy efficiency.
- Ascertain the appropriate scope of inquiry for the workshop.
- Elicit the knowledge and wisdom of project participants regarding future trends, events, and action options, both plausible and desirable.
- Prepare materials for presentation during the workshop that illustrate the diversity of perspectives and the complexity of the situation.
- Identify groups with similar interests.
- Identify groups with heterogeneous perspectives.

You are asked to respond to nine triggering questions.

To begin contributing your insight, click "begin" at the end of this briefing. You will follow a single path through the four major sections. The four sections are:

	Estimated Time to Completion
1) International Trends	10-15 minutes
2) National Trends	20 minutes
3) Regional Trends	25 minutes

A detailed outline of sub-sections is found below. You'll note a common pattern within each section.

- First you are invited to review cited trends, events, barriers, options and opportunities, and then indicate which ones you consider to be within the scope of discussions at the workshop. Many of the statements included here are intended to test the boundaries and categories of interest rather than compile statistics about specific trends.

- Second, there are open-ended responses. These may be new insights triggered by observations about the future included in the first section – or they may just be something you have in mind. You may also choose to offer as a suggestion, one or more of the cited trends and events refining them as you see fit.

Feel free to choose where to focus your time depending on your interests, i.e., skip sections that are not of interest to you. **Your open-ended responses, in sections 1.2, 2.2, and 3.2 are the most important to the preparation of the workshop.**

1.0) International Trends in Energy Consumption

1.1) Focus on Cited Trends & Events Increasing Energy Consumption
Select the Top Five over the Last Twenty Years
Select the Top Five for the Next Twenty Years

1.2) Suggest Trends & Events Impacting Energy Consumption
Offer specific international trends, in a fifteen to twenty year time horizon.

1.3) Focus on Cited Barriers Impacting Energy Efficiency
Select the Top Five over the Last Twenty Years
Select the Top Five for the Next Twenty Years

2.0) National Trends in Energy Efficiency

2.1) Cited National Trends and Events Impacting Energy Efficiency
Indicate the types of national trends you believe are the most pertinent to consider during the workshop.
Rate the importance of statements you've selected.

2.2) Suggest National Trends and Events Impacting Energy Efficiency
Offer specific national trends in a ten to fifteen year time horizon. If you have special knowledge of the region, you want to focus your comments on those national trends you feel are the most pertinent to the Pacific Northwest.
Select the trends you personally are interested in addressing during the workshop.

3.0) PNW Regional Trends in Electric Energy Efficiency End-Use

3.1) Cited Regional Trends and Events Influencing the Adoption of Electric Energy Efficiency in End-Use

Indicate the types of trends to focus on during the workshop.
Rate the importance of statements you've selected.

3.2) Suggest Regional Trends and Events in the Pacific Northwest Influencing the Adoption of Electric Energy Efficiency in End-Use

Offer specific Pacific Northwest trends in a five to ten year time horizon.
Select the trends you personally are interested in addressing during the workshop.

In sections 1.1, 1.3, 2.1 and 3.1 you will find reference hyperlinks that open a second window on top of the survey. The survey window underneath remains open. Simply close the reference window to continue answering the survey. It is not necessary to look at any of these links for the purpose of completing the survey. If there is a statement you don't understand – simply skip it, as it is likely to not be of interest to you as the subject of discussion during the workshop. However, if you are curious and have the time you may find the background narrative interesting. You may also download it in its entirety to read before or after you take the survey or to have as a reference.

The links in section 1 simply list the background references used in compiling the statements. Sections 2.1 and 3.1 include a bibliography and add to it a summary of the orientation of this section of the inquiry, a statement of the relevance of the statements, potential implications that tie these statements in with those of other sections, an annotated bibliography, and mini-scenarios. The narrative in 2.1 & 3.1 is designed to foster creative insights and promote lateral thinking. As such it draws on literature from many fields and disciplines that are outside the traditional energy discourse.

We call your attention to shifts of context in each section.

	Section 1	**Section 2**	**Section 3**
Level	International	National	Regional (Pacific Northwest)
Focus	Total Energy Consumption	Progress on Energy Efficiency	Adoption of Electric Energy Efficiency
Sectors	All	All but especially as they may impact the residential and commercial sectors	Residential and Commercial Sectors (& Industrial, Agricultural as they may pertain)
Type of Observations	Trends, Events, and Barriers	Trends and Events	Trends and Events
Type of Influence	(1.1&3) Observations that **increase** total energy consumption (1.2) **Impacting** (either positively or negatively.)	Observations that **influence** energy efficiency adoption (either positively or negatively.)	Observations that **influence** energy efficiency adoption (either positively or negatively.)
Planning Horizon	15-20 Years	10-15 Years	5-10 Years

This survey is designed to be provocative. It is not intended to validate "extrapolative futures" which are found in a wide range of existing studies, nor to engage in prediction-making. The survey is one step in developing pathways towards a desirable future over the next fifteen years for the purpose of positioning an approach to market transformation in the next three to five years.

The "observations about the future" included here are extracted from a wide variety of literature. However, the designers of the survey have organized the materials in a schema of themes with the intention of framing the energy efficiency discourse from the perspective of consumer trends. In some instances the entries may appear to be unrelated to conventional wisdom regarding energy use – they may just make you wonder and hopefully trigger new insights.

You may download a copy of the survey and background material for your reference.

Download survey in MS Word 97 format
Download background materials in MS Word 97 format

Download survey in PDF format
Download background material in PDF format

If you would like a record of your completion of the survey simply use the print function in your browser before you leave each section. You may take the survey as many times as you like, however, you will not be able to recall your previous entries.

Please click the button below, "begin," to launch the survey.

BEGIN

1.1) Focus on Cited International Trends and Events Increasing Energy Consumption

User ID

Note: Due to the length of the tables in this section you may find it helpful to print it.

1.1A) Which five trends, in your opinion, have been the most important driving forces for **increasing** international energy consumption. Please indicate your view for **the last twenty years** by entering a check on the left hand column.

	Global economic growth (GNP)
	Global demographic growth (Annual population growth rates)
	Global demographic transitions (Changes in the proportion of age groups)
	Governmental policies in favor of building energy infrastructure
	Growing global urbanization
	Proliferation of world trade agreements
	Formation of huge commercial blocs of countries
	Economic shift from the primary and secondary sectors to the third sector (Services)
	Newly popularized technologies outside the energy field (telecommunications, cybernetics and informatics)
	Private capital investments in the energy production field
	Increasing transportation needs of people and products
	Developing countries emergent economies
	Joint ventures with foreign actors
	More efficient technological innovations in the energy transformation field
	Long periods of low international fuel prices
	Increases in global industrial production
	Possible use of renewable resources in many countries
	Increased R & D in the energy field throughout the world
	Energy waste by end-consumers
	Life standards promoted by marketing
	More leisure at hand
	Ignorance about ecological impacts of excess energy consumption
	Income per capita of developed countries and emergent economies
	Climate changes
	Life standards promoted by educational institutions
	International political conflicts, political instability
	Free market as proclaimed by neo-liberalism
	Increase in size and number of multinational companies outside of the energy field
	Oil exploration and prospecting activities
	Increase in outer space exploration activities
	Scientific and technological breakthroughs
	Energy infrastructure built across countries

1.1B) Which five trends do you anticipate will be the most important driving forces for **increasing** international energy consumption. Please indicate your view for **the next twenty years** by entering a check on the left hand column. reference

	Global economic growth (GNP)
	Global demographic growth (Annual population growth rates)
	Global demographic transitions (Changes in the proportion of age groups)
	Governmental policies in favor of building energy infrastructure
	Growing global urbanization
	Proliferation of world trade agreements
	Formation of huge commercial blocs of countries
	Economic shift from the primary and secondary sectors to the third sector (Services)
	Newly popularized technologies outside the energy field (telecommunications, cybernetics and informatics)
	Private capital investments in the energy production field
	Increasing transportation needs of people and products
	Developing countries emergent economies
	Joint ventures with foreign actors
	More efficient technological innovations in the energy transformation field
	Long periods of low international fuel prices
	Increases in global industrial production
	Possible use of renewable resources in many countries
	Increased R & D in the energy field throughout the world
	Energy waste by end-consumers
	Life standards promoted by marketing
	More leisure at hand
	Ignorance about ecological impacts of excess energy consumption
	Income per capita of developed countries and emergent economies
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	Oil exploration and prospecting activities
	Increase in outer space exploration activities
	Scientific and technological breakthroughs
	Energy infrastructure built across countries

Before you leave this section and go to the next section you may want to copy a trend that you found particularly interesting or that you would like to build on, or amend, for the next section.

Continue to the Next Section

1.2) Suggest International Trends and Events Impacting Energy Consumption

If you are short on time please skip this section and go on to the next.

1.2) What international trends / events do you anticipate will have the greatest impact on energy consumption over the next two decades? (Please cite any references you deem appropriate.)

After suggesting a trend or event, please indicate whether you view your statement as plausible or desirable or both.

There are many "possible futures," on the basis of knowledge, data and information; among these, there is a subset which are "probable futures." In some cases, these can even become "plausible" in so far as they are likely to occur.

"Desirable futures" are more related to personal and social values. "Desirable" indicates an ideal or "what ought to be."

1.2.1)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

1.2.2)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

1.2.3)

) ❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

1.2.4)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

1.2.5)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

1.3) Cited International Barriers Impacting Energy Efficiency

1.3A) Which have been the five most important barriers to energy efficiency leading to the **increase** of global energy consumption? Please indicate your judgment regarding **the last twenty years** in the left hand column.

	Higher costs implied by cleaner technologies to produce electricity
	Knowledge about recoverable resources in the world
	Carbon dioxide emissions to the atmosphere
	Slow pace of development in developing countries
	Poverty in a large proportion of countries around the world
	Awareness of people of the waste implied in intensive energy consumption
	Policies applied by oil production countries in the world
	Wrong allocation of public funds
	Power companies lack of planning and bad management programs
	Low performance to improve the efficiency of energy transformation processes to produce electricity
	Corruption in the public sector
	Corruption in the private sector
	Uncontrolled energy distribution policies
	Increased desire of the global population for a sustainable development
	Failures in huge private industrial projects
	Present global division of labor favoring the installation of certain kind of industries in the underdeveloped countries
	Increasing amount of air, water and soil contaminants: environmental pollution.
	Insufficient R&D in the energy field
	International conventional fuel prices
	Environmental policies
	Unfavorable climate changes
	Decline of energy intensity for consumption
	High costs of oil prospecting activities
	Highly developed countries policies regarding oil storage for future contingencies
	Low estimated recoverable oil reserves
	Disequilibrium in the trade balances of many countries
	Slow diffusion of better technologies to produce clean end-use energy around the world
	Insecurity of nuclear power plants
	Summer clock changes applied in many countries
	Energy production mostly in the hand of governments around the world
	Geopolitical outlook

1.3B) Which barriers do you anticipate will be the most important barriers to energy efficiency leading to the **increase** of global energy consumption? Please indicate your judgment regarding **the next twenty years** in the left hand column. reference

	Higher costs implied by cleaner technologies to produce electricity
	Knowledge about recoverable resources in the world
	Carbon dioxide emissions to the atmosphere
	Slow pace of development in developing countries
	Poverty in a large proportion of countries around the world
	Awareness of people of the waste implied in intensive energy consumption
	Policies applied by oil production countries in the world
	Wrong allocation of public funds
	Power companies lack of planning and bad management programs
	Low performance to improve the efficiency of energy transformation processes to produce electricity
	Corruption in the public sector
	Corruption in the private sector
	Uncontrolled energy distribution policies
	Increased desire of the global population for a sustainable development
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	Highly developed countries policies regarding oil storage for future contingencies
	Low estimated recoverable oil reserves
	Disequilibrium in the trade balances of many countries
	Slow diffusion of better technologies to produce clean end-use energy around the world
	Insecurity of nuclear power plants
	Summer clock changes applied in many countries
	Energy production mostly in the hand of governments around the world
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To complete section 1 please select the **"Submit"** button at the bottom of this page to send your answers. You will then be presented with section 2. The next section asks you to shift the context as follows.

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Planning Horizon	15-20 Years	10-15 Years	5-10 Years

Submit Click here to submit your responses to Section 1 and move on to Section 2.

2.1) Cited National Trends and Events Impacting Progress in Energy Efficiency

2.1) Please indicate which national trends or events impacting energy efficiency, especially with respect to the residential and commercial sectors, over the next 15 years, would be of interest to consider during the workshop. Then please rate on a (Likert) scale of one to five indicating your general interest in discussing each theme during the workshop.

2.1.1) Appealing to Ancient Wisdom reference

❏ The Ethics of Sustainability continues to rise: "not imposing cost to future generations"
❏ Appreciation of Native American traditions increases.
❏ "Stewardship" becomes embedded in business school curricula along with leadership.
❏ Interest in Intentional Communities increases and begins to attract corporate sponsorship.
❏ Planned communities increasingly combine "commerce" and "residence" in a village model.
❏ Cultural exchange with South America sensitizes Generation Y children to sustainable lifestyles.
❏ A return to anti-materialism of the 1960s is simultaneous with an increase in disposable (biodegradable) products.

I think the consideration of the statements I selected above are:

❏ **Very Important**
❏ **Important**
❏ **Moderately Important**
❏ **Of Little Importance**
❏ **Unimportant**

2.1.2) Resolving the Crisis of Meaning reference

❏ Inappropriate price signals drive an increase in market interventions.
❏ The link of Economic Growth to Energy Intensity is weakened due to Information & Communication Technology.
❏ Increasing Valuation of Intangibles in the Financial Sector engenders a new economic paradigm.
❏ Customer as Shareholder and Product Developer increases the sense of consumer responsibility.
❏ Home as a primary work environment sensitizes labor to total business costs.
❏ The boundary between Commercial and Residential Sectors is increasingly blurred.
❏ Public and private life converges in the home – shopping, education, work, and entertainment.
❏ The cost of consumer purchasing decisions in selecting appliances decreases, e.g., use of expert systems for facilitating sales decrease the complexity of consumer decision-making, strong mandates or standards eliminate non-efficient choices, web-based catalogues and online comparative product reviews reduce the cost of information gathering for comparison shopping.
❏ Green labeling is subsumed as a competitive advantage in branding motifs.
❏ Brand holders are held accountable for the entire "value constellation" involved in product life-cycles.
❏ The breakdown of "parity exchange," – pricing based on who the seller is rather than on the intrinsic value of the good, increasingly mirrors that of the middle ages.

I think the consideration of the statements I selected above are:

❏ **Very Important**
❏ **Important**
❏ **Moderately Important**
❏ **Of Little Importance**
❏ **Unimportant**

2.1.3) Engaging The Knowledge Value Revolution reference

❏ "Knowledge Value" increasingly becomes the exploited resource base rather than energy.
❏ The number of internet "users" grows much larger than the population of the planet due to software agents that take on increasing responsibility.
❏ Valuation of network relationships dominates valuation of hard assets and revenue projections.
❏ Knowledge intensive needs and wants drive a trend towards ever more heterogeneous markets.
❏ Heterogeneous markets increase the degree of customization in products.
❏ To compete in the provision of customized products designers and manufacturers must adopt "mass customization" processes. One approach is to design for modularly interchangeable components on a common product platform.

I think the consideration of the statements I selected above are:

❏ **Very Important**
❏ **Important**
❏ **Moderately Important**
❏ **Of Little Importance**
❏ **Unimportant**

2.1.4) Revealing "Cultural Creatives" from Generation X to Y reference

❏ The Cultural Creative Type as a growing demographic.
❏ The Midlife Crisis for Generation X.
❏ The emergence of Generation Y.
❏ The rise in disposable income decreases personal interest in pro-efficiency buying behavior.
❏ Personal tastes drive high product and service variety.
❏ It becomes widely acknowledged that women's ability with network relationships is superior. For example, women-led startup firms in network dependent businesses are more successful. Network-dependent businesses tend to reduce energy intensity.
❏ More single people and more childless couples mean more households and thus greater energy use.

I think that consideration of the types of statements I indicated above are:

❏ **Very Important**
❏ **Important**
❏ **Moderately Important**
❏ **Of Little Importance**
❏ **Unimportant**

2.1.5) Amplifying Eco-System Signals and Synergy reference

❏ A perceived increased in environmental catastrophes and strange weather increase eco-sensitivity.
❏ Efficiency related sensor technologies are increasingly embedded in buildings and appliances.
❏ An increase in power shortages, brownouts, and peak load price spikes, re-sensitizes the public.
❏ Increasing empirical evidence of global warming leads to public acceptance of it as "fact."
❏ El Nino/La Nina causes massive property losses – insurance companies pool resources on long-term global risk reduction strategies to prevent further climate uncertainty engendered by the built-environment.
❏ Indoor environmental-health technology is in vogue to eliminate bacteria, allergens, radon, and latent fumes, including the use of smart filters & ventilation and self-vacuuming carpets. Even genetically engineered lawns may reduce the reliance on air conditioning during hay fever season.

I think the consideration of the statements I selected above are:

❏ **Very Important**
❏ **Important**
❏ **Moderately Important**
❏ **Of Little Importance**
❏ **Unimportant**

2.1.6) Playing Societal Politics with Environmental Behaviors reference

- ❑ U.S. shortfall in meeting Kyoto target engenders international protests, sensitizing the American Public as to the need for aggressive environmental policy.
- ❑ Rise in disparity between environmental corporate reporting and observed corporate behavior.
- ❑ Another energy-supply related war increases "radicalization" of Generation Y.
- ❑ Earth day celebrations emerge as a new national holiday and community, school, and family ritual.
- ❑ Eliminating the stigma of the impact of energy on environmental quality.

I think the consideration of the statements I selected above are:

- ❑ **Very Important**
- ❑ **Important**
- ❑ **Moderately Important**
- ❑ **Of Little Importance**
- ❑ **Unimportant**

2.1.7) Linkages to Economic Development in other Sectors reference

- ❑ Urban influx of IT labor displaces low-income residents providing incentives for refurbishment.
- ❑ Just-In-Time Supply Chains become the norm.
- ❑ Shipping container tracking, logistics, and ports become so reliable the ship becomes the "warehouse."
- ❑ E-shopping increases trucking volume.
- ❑ The rise of local eco-tourism sensitizes the region to green products.
- ❑ Eco-tourism sites become useful test markets for green products to sample other regional responses.
- ❑ Residential Real Estate Developers adopt "Energy Star" Compliance as part of their advertising.
- ❑ Heterogeneous demand drives industrial demand for sensors, controls, flexible manufacturing, modular design for point-of-use customization, product platforms to isolate technology components with a high rate of change, and sales configuration engineering software.
- ❑ Improvements in the energy efficiency of manufacturing significantly temper the growth in energy demand.

I think the consideration of the statements I selected above are:

- ❑ **Very Important**
- ❑ **Important**
- ❑ **Moderately Important**
- ❑ **Of Little Importance**
- ❑ **Unimportant**

2.1.8) Pushing Technology in the Residential and Commercial Sectors reference

- ❑ Economic Convergence in the Developing World Leads to Energy Efficiency Leapfrogging.
- ❑ The rise of the Mass Customization approach to design / manufacturing / construction continues.
- ❑ E-Commerce is increasingly conducted from within the home.
- ❑ Major household appliances will be leased instead of purchased - spurred by environmental concerns, producer-responsibility regulations, cost, and the increasing speed of obsolescence.
- ❑ Decentralization of waste management for sorting, recycling, and disposal of solid waste.
- ❑ Decentralization of water treatment and recycling.
- ❑ Wireless energy-distribution as well as data transmission and communication becomes the mainstay.
- ❑ Steel, aluminum, and copper are increasingly recognized for their recyclability.

I think the consideration of the statements I selected above are:

- ❑ **Very Important**
- ❑ **Important**
- ❑ **Moderately Important**
- ❑ **Of Little Importance**
- ❑ **Unimportant**

2.1.9) Visualizing our Futures reference

❏ Energy Efficiency Software Tools are increasingly embedded in Computer Aided Design Packages.
❏ Resident / Labor involvement in urban and industrial-residential planning increases - supported by the merger of Geographic Information Systems with Collaborative Planning and Design methods.
❏ Eco-Revelatory Landscape Design software, formerly requiring supercomputers, is embedded as a sales tool in "design-build-manage" landscape-nurseries.
❏ Most all children of Generation-Y have carried out projects with SimCity and the World Game.
❏ New urban design emphasizes non-sprawl.

I think the consideration of the statements I selected above are:

❏ **Very Important**
❏ **Important**
❏ **Moderately Important**
❏ **Of Little Importance**
❏ **Unimportant**

2.1.10) Emerging Models of Adoption and Diffusion reference

❏ The cost of consumer involvement in energy efficiency investment decision making goes down.
❏ Lead User Innovation, i.e., collaboration with extreme-use customers, is adopted as the norm by product and building component developers.
❏ Better mechanisms of public awareness, involvement and participation.

I think the consideration of the statements I selected above are:

❏ **Very Important**
❏ **Important**
❏ **Moderately Important**
❏ **Of Little Importance**
❏ **Unimportant**

2.1.11) Editing the Symbolic Environment reference

❏ Advertising increasingly accompanies regulatory interventions in efficiency initiatives.
❏ A slowly growing backlash against materialistic "symbol pollution" of public spaces by advertisers leads to stricter zoning controls in some areas regarding the balance of consumptive and conservationist agendas.
❏ New educational curricula emphasizes civic engagement. For example, as the computer simulation tool Simcity sensitizes students to issues in urban development, a "Simcivic" sensitizes students to civic development.

I think the consideration of the statements I selected above are:

❏ **Very Important**
❏ **Important**
❏ **Moderately Important**
❏ **Of Little Importance**
❏ **Unimportant**

2.1.12) Cross-Impacting of Foundation Technologies reference

- ❑ The materials revolution – super-materials – computer-based design and manufacturing of new materials at the molecular level will mean new, high-performance materials for use in transportation, computers, energy, and communications – led in large part by Japan.
- ❑ Compact, long-lasting energy sources, including fuel cells and batteries, will power electronic devices such as personal computers.
- ❑ The innovation rate for energy-use efficiency in electronic devices will outpace the developments in the energy-source technology. Product Architectures emerge that isolate the fast changing components from the slower changing ones by design through the standardization of interfaces. For example, Sony standardized the interface to batteries in Walkmans because the pace of electronics innovation far outstripped the pace of battery innovations.

I think the consideration of the statements I selected above are:

- ❑ **Very Important**
- ❑ **Important**
- ❑ **Moderately Important**
- ❑ **Of Little Importance**
- ❑ **Unimportant**

Before you leave this section and go to the next section you may want to copy a trend that you found particularly interesting or that you would like to build on, or amend, for the next section.

Continue to the Next Section

2.2) Suggest National Trends and Events Impacting Progress in Energy Efficiency

2.2) What national trends / events would you consider to have the greatest impact on energy efficiency, especially with respect to the residential and commercial sectors, over the next fifteen years? (Please cite any references you deem appropriate.)

Feel free to offer as a suggestion one or more of the cited national trends or events, build on them, or amend them as you see fit.

After suggesting a trend or event, please indicate whether you view your statement as plausible or desirable or both.

There are many "possible futures," on the basis of knowledge, data and information; among these, there is a subset which are "probable futures." In some cases, these can even become "plausible" in so far as they are likely to occur.

"Desirable futures" are more related to personal and social values. "Desirable" indicates an ideal or "what ought to be."

2.2.1)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

2.2.2)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

2.2.3)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

2.2.4)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

2.2.5)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

2.2.6) Identify three suggestions you would be most interested in speaking about during the workshop.

2.2.1) ❑
2.2.2) ❑
2.2.3) ❑
2.2.4) ❑
2.2.5) ❑

To complete section 2 please select the "Submit" button at the bottom of this page to send your answers. You will then be present with section 3. The next section asks you to shift the context as follows.

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Planning Horizon	15-20 Years	10-15 Years	5-10 Years

Submit Click here to submit your responses to Section 2 and move on to Section 3.

3.1) Cited Regional Trends and Events Influencing Adoption of Electric Energy Efficiency in End-Use

3.1) Please indicate which regional trends or events would be of interest to consider during the workshop. We are particularly interested in those that in your opinion, will be productive to discuss in order to enhance understanding systemic influences on the adoption of electric energy efficiency in end-use, especially in the residential and commercial sectors.

Then please rate on a (Likert) scale of one to five indicating your general interest in discussing each theme during the workshop.

3.1.1) Co-Evolution of Demand reference

- ❑ The development and diffusion of energy-using devices and technologies is understood as the consequence of socio-technical change.
- ❑ Guarantees of Energy Savings Performance including credibility tests for providers.
- ❑ Consumers increasingly willing to pay more for energy-efficiency homes above code mandates.
- ❑ Marketing products as more energy-efficient becomes an integral part of home building strategies.

I think the consideration of the statements I selected above are:

- ❑ **Very Important**
- ❑ **Important**
- ❑ **Moderately Important**
- ❑ **Of Little Importance**
- ❑ **Unimportant**

3.1.2) Changing Conventions of Comfort, Cleanliness, and Convenience reference

- ❑ Sound isolation becomes a primary comfort sought in high population density areas.
- ❑ Energy demand is driven by energy services such as escalating dwelling size, comfort, and convenience.
- ❑ Increasing use of hot water as a provider of pleasure (hot tubs, Jacuzzis, roman sized bathtubs), and space heat and light to provide atmosphere.
- ❑ Saving time to complete activities like clothes washing, drives the use of ever more efficient mechanical substitutions for manual work.

I think the consideration of the statements I selected above are:

- ❑ **Very Important**
- ❑ **Important**
- ❑ **Moderately Important**
- ❑ **Of Little Importance**
- ❑ **Unimportant**

3.1.3) Energy Consumption as a Societal Phenomenon reference

❑ Increased use of the home for conducting paid work (tele-commuting) and accessing services reduces occupancy in service sector buildings.

❑ 7-11 Shopping hours become common in many large downtown stores and malls.

❑ Smart homes are likely to assume a greater role in cooking and other household chores allowing occupants to be gone from the home longer while menial tasks are performed in their absence.

❑ Travel for services and leisure decline as the home becomes a major focus of catalogue shopping and the self-production of entertainment services.

❑ Greater residential densities in cities decrease commuting and travel or at least permit greater use of collective modes including walking and biking.

❑ Restricted income growth implies consumers "do-it-themselves" gardening, building and relying on informal, local opportunities for business services and barter of free services.

I think the consideration of the statements I selected above are:

❑ **Very Important**
❑ **Important**
❑ **Moderately Important**
❑ **Of Little Importance**
❑ **Unimportant**

3.1.4) Needs-Wants Distinctions Socially Constructed reference

❑ The growing social demand for energy provides social scientists with an insight of how energy intensive ways of life become normal, that is how energy demand is embedded in society.

❑ The distinction between "basic" and "other" energy needs becomes blurred when viewed in the context of evolving energy services.

❑ Improvements in regional public transportation systems diminishes the "need" for private automobiles by consumers.

❑ Societal values will emphasize the long-term and meeting collective wants and needs. For example, in societal decision-making the "needs" and "wants" of future generations will be increasingly accounted for.

I think the consideration of the statements I selected above are:

❑ **Very Important**
❑ **Important**
❑ **Moderately Important**
❑ **Of Little Importance**
❑ **Unimportant**

3.1.5) The New Ethics reference

❑ Strong emphasis on environmental issues, equity and social inclusion.

❑ Communitarian Values encourage cooperative self-reliance.

❑ The Conservationist ethic grows.

I think the consideration of the statements I selected above are:

❑ **Very Important**
❑ **Important**
❑ **Moderately Important**
❑ **Of Little Importance**
❑ **Unimportant**

3.1.6) Socio-Technical Arrangements reference

- ❑ "Lifestyle engineering" by businesses, supported by government action (e.g., through subsidies for consumption of new housing, highways, fossil fuels etc.) increases adverse environmental impacts.
- ❑ Efficiency efforts by government and utility advertising and programming, continues to target a "mass market."
- ❑ "Exurban" commercial and residential real estate is on a continuous uptrend as knowledge workers migrate into depressed small-towns, forlorn company towns, and abandoned farms too small for track development. "Technotribes" blossom as prototype, new model communities.

I think the consideration of the statements I selected above are:

- ❑ **Very Important**
- ❑ **Important**
- ❑ **Moderately Important**
- ❑ **Of Little Importance**
- ❑ **Unimportant**

3.1.7) Socio-Cultural Forces reference

- ❑ Political systems are transparent, participatory, inclusive and democratic at a more local level.
- ❑ Regional and local cultural identities are revived
- ❑ Purposive social and economic planning is the norm
- ❑ The family is strengthened as the primary social unit in the context of the local community

I think the consideration of the statements I selected above are:

- ❑ **Very Important**
- ❑ **Important**
- ❑ **Moderately Important**
- ❑ **Of Little Importance**
- ❑ **Unimportant**

3.1.8) Size, Taste and Design reference

- ❑ An increasing desire for "clean food" outstrips supply from traditional sources (i.e., organic farms), drives up prices, and creates a real estate growth market for "microfarms" nearby or within the urban environment. Mimicking the microbrewery trend with a much larger market, "microfarms" are among the most coveted commercial properties. New commercial opportunities emerge throughout the supply chain: in teaching about, growing, raising, processing, preserving, marketing, packaging, and distribution.
- ❑ Nineteenth –century general stores remerge in community settings as an expert-knowledge service facility providing a high-value added, "edutainment" shopping experience. Led by pharmacists, America's most trusted professionals, it is based on old-fashion personal relationships that provides the community it services (within a fifteen minute walk) a social gathering place. It also establishes the most intimate form of individualized market research yet devised.
- ❑ Nano-cultivation devices, for making bacterially-based foods such as yogurts and cheeses, and fermented products such as beers and kimchee become standard optional modules in turnkey kitchens.

I think the consideration of the statements I selected above are:

- ❑ **Very Important**
- ❑ **Important**
- ❑ **Moderately Important**
- ❑ **Of Little Importance**
- ❑ **Unimportant**

3.1.9) Making Busy Lives Manageable reference

❏ People equip their homes with the latest gadgets so that they can work at night and make their busy lives manageable.

I think the consideration of the statements I selected above are:

❏ **Very Important**
❏ **Important**
❏ **Moderately Important**
❏ **Of Little Importance**
❏ **Unimportant**

3.1.10) Involving Many Actors reference

❏ Traditional 'regulation' is replaced by a more diffused structure of governance involving stakeholders throughout society.

I think the consideration of the statements I selected above are:

❏ **Very Important**
❏ **Important**
❏ **Moderately Important**
❏ **Of Little Importance**
❏ **Unimportant**

3.1.11) Retooling Research reference

❏ Serious and rigorous studies are conducted of how the U.S. and other societies are internally socially differentiated in terms of lifestyle and their implications for energy efficiency and environmental policy.
❏ The market transformation movement benefits from a recent understanding of consumers and the lifestyle basis of their action in markets and in their interactions with other market actors.
❏ Expansion of discourse on a global scale about lifestyles and its impact on the environment.

I think the consideration of the statements I selected above are:

❏ **Very Important**
❏ **Important**
❏ **Moderately Important**
❏ **Of Little Importance**
❏ **Unimportant**

3.1.12) Rethinking Policy reference

- ❏ Company and tax policies favoring entertainment expenses influence how people choose to go out.
- ❏ Efficiency gains in devices are offsetting the many upward pressures from lifestyle changes.
- ❏ Recognition that device-centered approaches are limited in their ability to represent the real-world conditions of consumption.
- ❏ Recognizing that social perspectives on demand offer a more accurate conception of energy use, policy analysis is able to explore a larger number of causal accounts and entertain a wider range of interventions.
- ❏ Voluntary agreements between government and industry are increasingly deployed as a policy instrument for reducing energy use by consumers.
- ❏ Policy development focuses on human behavior that drives energy consumption rather than technological aspects.
- ❏ The identification of unintended consequences of focusing energy policies on energy efficiency, leads to improved effectiveness and equity of energy policies recasting its consideration of absolute levels of consumption in addition to technical efficiency.

I think the consideration of the statements I selected above are:

- ❏ **Very Important**
- ❏ **Important**
- ❏ **Moderately Important**
- ❏ **Of Little Importance**
- ❏ **Unimportant**

Before you leave this section and go to the next section you may want to copy a trend that you found particularly interesting or that you would like to build on, or amend, for the next section.

Continue to the Next Section

3.2) Suggest Regional Trends in the Pacific Northwest Influencing Adoption of Electric Energy Efficiency in End-Use

3.2) What regional trends and events do you feel would be of interest to consider during the workshop? We are particularly interested in those that, in your opinion, you feel it would be productive to discuss in order to enhance understanding systemic influences on the adoption of electric energy efficiency in end-use, especially in the residential and commercial sectors, of the Pacific Northwest, over the next fifteen years.

(Please cite any references you deem appropriate.)

Feel free to offer as a suggestion one or more of the cited trends or events, build on them, or amend them.

After suggesting a trend or event, please indicate whether you view your statement as plausible or desirable or both.

There are many "possible futures," on the basis of knowledge, data and information; among these, there is a subset which are "probable futures." In some cases, these can even become "plausible" in so far as they are likely to occur.

"Desirable futures" are more related to personal and social values. "Desirable" indicates an ideal or "what ought to be."

3.2.1)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

3.2.2)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

3.2.3)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

3.2.4)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

3.2.5)

❏ Plausible ❏ Desirable ❏ Both Plausible and Desirable

3.2.6) Identify the three suggestions you would be the most interested in speaking about during the workshop?

3.2.1) ❏
3.2.2) ❏
3.2.3) ❏
3.2.4) ❏
3.2.5) ❏

Submit Click here to complete section 3.

APPENDIX C

Summary of Survey Results

The Future of Electric Energy Use In the U.S. and Pacific Northwest: Consumer Trends and Scenarios 2005-2015

Survey Responses of Workshop Participants

Survey Designed:
Kevin M.C. Dye

CWA, Ltd.
Interactive Management Consultants

Prepared for:

NORTHWEST ENERGY EFFICIENCY ALLIANCE

Workshop
March 14-16, 2001

Skamania Lodge

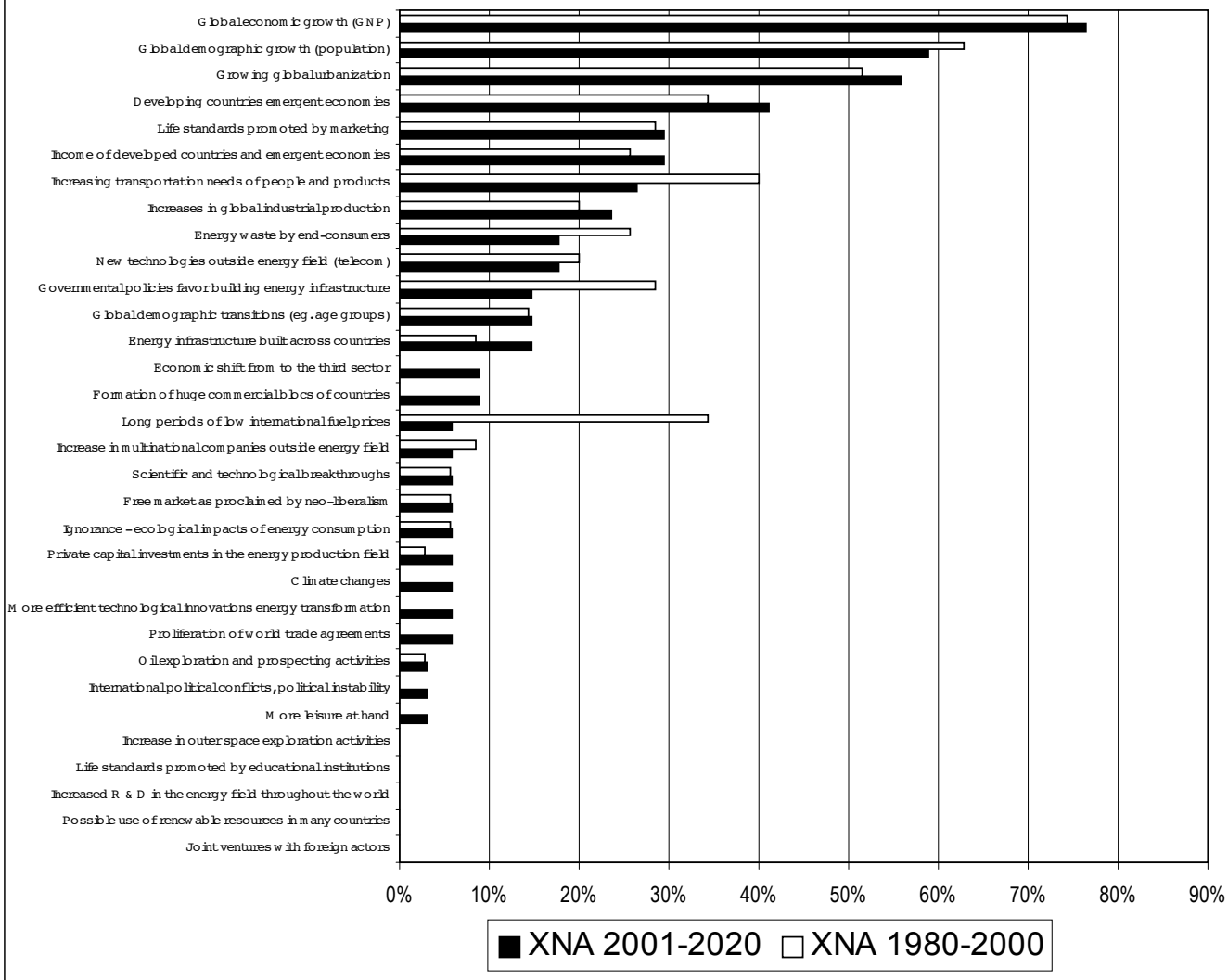
CWA Ltd. *Interactive Management Consultants*
WORLD HEADQUARTERS: 1770 E. Lancaster Avenue, #L5, Paoli, PA 19301 USA / Phone: 610-651-0414 / Fax: 610-651-2717 / www.CWAltd.com

Trends in Driving Forces of Energy Consumption

Participant Ratings of the Next Twenty Years vs. The Last Twenty Years

Percentage of Forty-Four Workshop Participant Respondents as of 10 March 2001

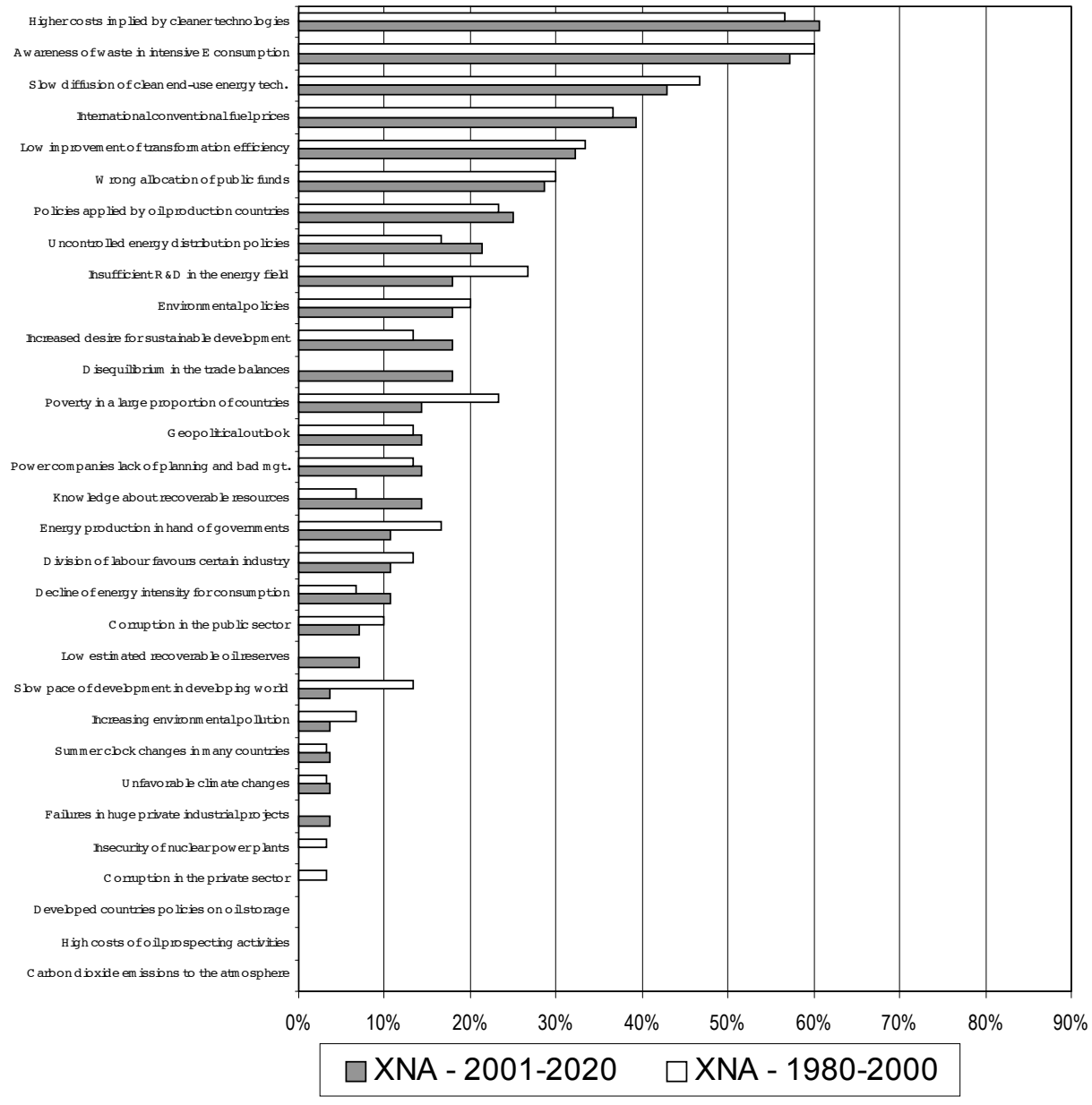
(Excluding those with No Answer)



Trends in Barriers to Energy Efficiency

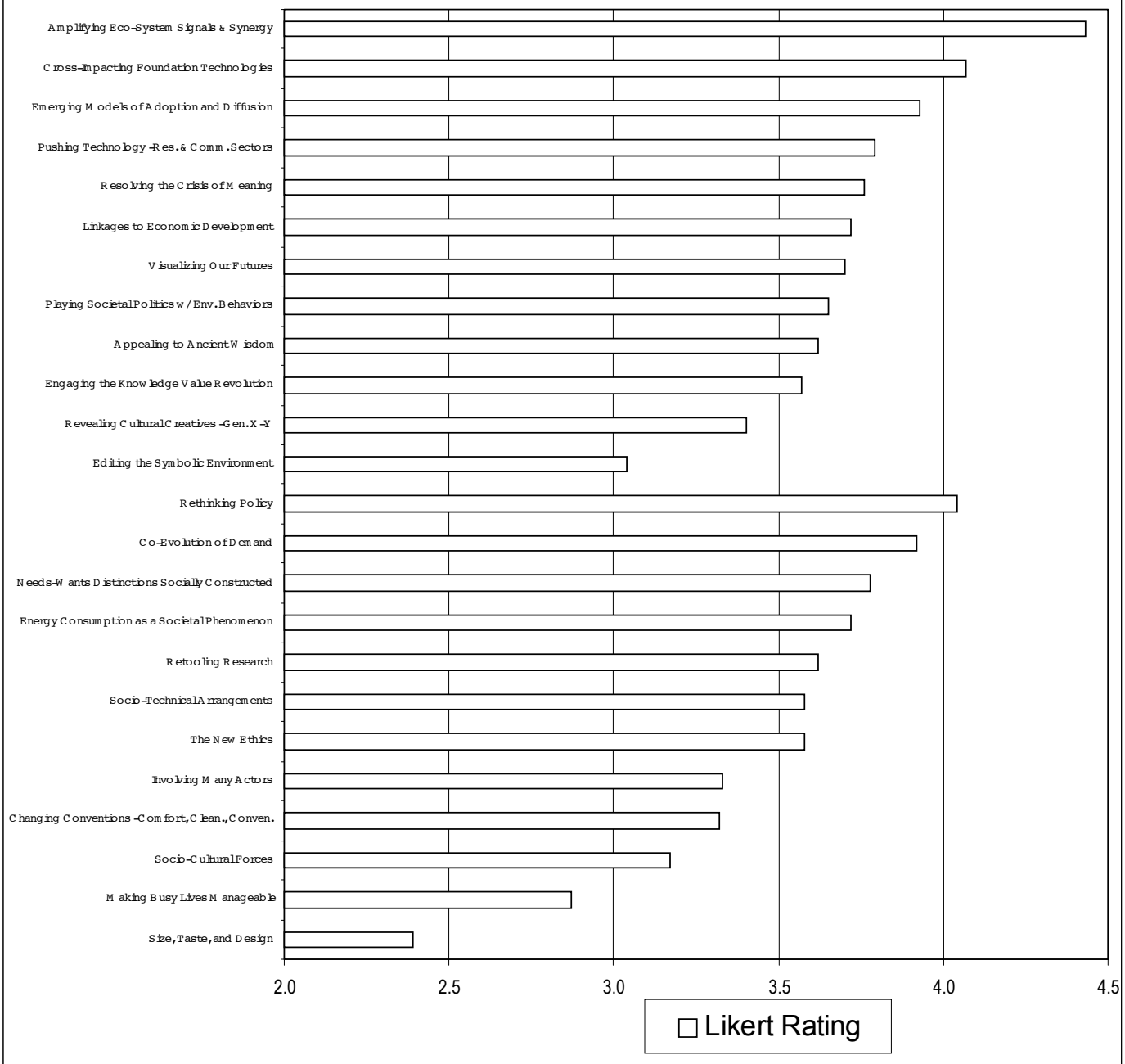
Participant Ratings of the Next Twenty Years vs. The Last Twenty Years

Percentage of Forty-Four Workshop Participant Respondents as of 10 March 2001
(Excluding those with No Answer)



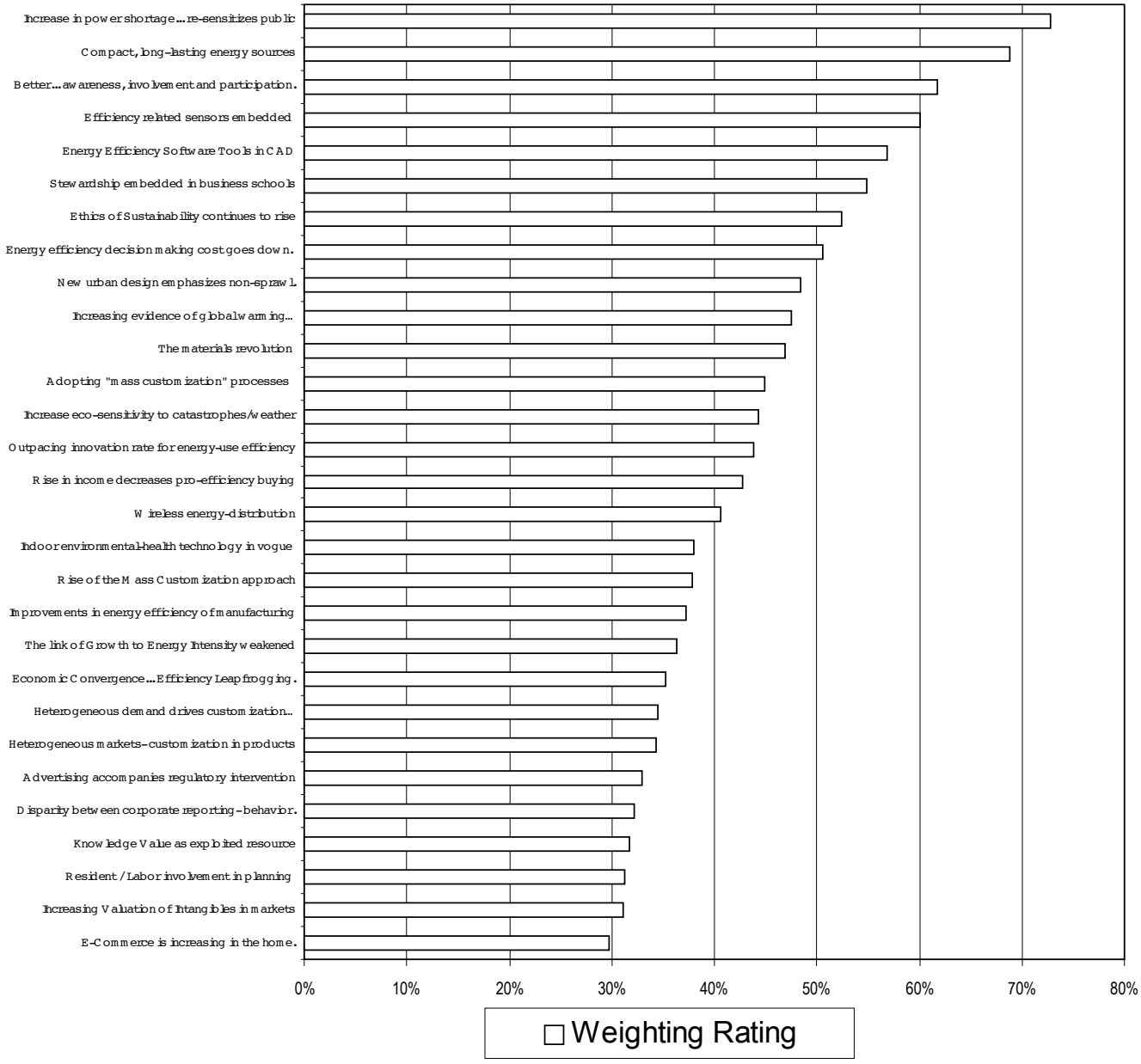
Ratings of Thematic Trends in Energy Efficiency

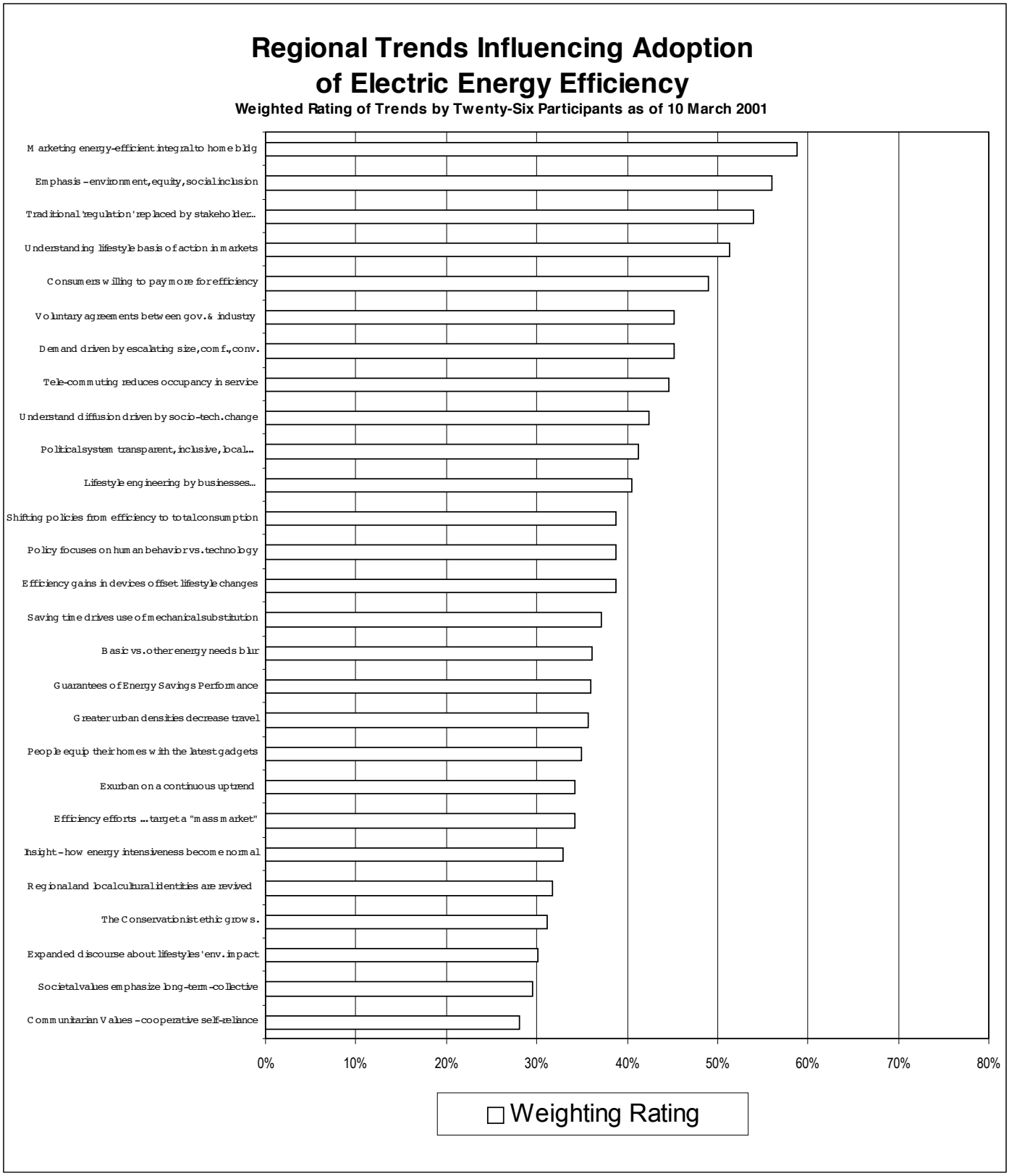
Thirty-Four and Twenty-Six Workshop Participant Respondents as of 10 March 2001
(Excluding those with No Answer)



National Trends Impacting Progress on Energy Efficiency

Weighted Rating of Trends by Thirty-Four Participants as of 10 March 2001




Regional Trends Influencing Adoption of Electric Energy Efficiency
Weighted Rating of Trends by Twenty-Six Participants as of 10 March 2001
Marketing energy-efficient integral to home bldg
Emphasis - environment, equity, social inclusion
Traditional 'regulation' replaced by stakeholder...
Understanding lifestyle basis of action in markets
Consumers willing to pay more for efficiency
Voluntary agreements between gov. & industry
Demand driven by escalating size, comf., conv.
Tele-commuting reduces occupancy in service
Understand diffusion driven by socio-tech. change
Political system transparent, inclusive, local...
Lifestyle engineering by businesses...
Shifting policies from efficiency to total consumption
Policy focuses on human behavior vs. technology
Efficiency gains in devices offset lifestyle changes
Saving time drives use of mechanical substitution
Basic vs. other energy needs blur
Guarantees of Energy Savings Performance
Greater urban densities decrease travel
People equip their homes with the latest gadgets
Exurban on a continuous uptrend
Efficiency efforts ... target a "mass market"
Insight - how energy intensiveness become normal
Regional and local cultural identities are revived
The Conservationist ethic grows.
Expanded discourse about lifestyles' env. impact
Societal values emphasize long-term-collective
Communitarian Values - cooperative self-reliance
0%
10%
20%
30%
40%
50%
60%
70%
80%
Weighting Rating

International Trends and Events Impacting Energy Consumption
Contributions by Participants as of 11 March 2001

1. Follow the money / price signal. Improved trends in efficiency at the consumer level will only come about when energy prices align with or exceed consumer value. Energy prices for most customers, in all sectors, are simply too low (historically) to be at the forefront of their minds. Prices are far below intrinsic value for most. (In my opinion that's the primary answer to the questions in the next section as well - I'm surprised it's not more clearly indicated as an option there!) [Plausible, WP13]
2. Continued worldwide economic growth – GNP [Both Plausible and Desirable, WP 11]
3. Demand for higher standard of living from the citizens of emerging 3rd world countries. [Both Plausible and Desirable, WP 11]
4. Increased production requirements from existing high production rate countries (U.S., Canada, Western Europe, Japan) [Both Plausible and Desirable, WP 11]
5. Developing third world economies will greatly increase international energy consumption. [Plausible, WP30]
6. Fossil fuel use will continue to grow and will have environmental impacts. [Plausible, WP30]
7. The shifting balance between the global economy and local economies will be one of the strongest factors in determining future energy consumption. Communities dependent on the products of international corporations will in the end require more energy per person than more self-reliant communities. [Plausible, WP25]
8. Renewed interest in local culture can lead to renewal of local crafts. This is counterbalanced by a trend toward standardized products, imported from centralized warehouses. [Plausible, WP25]
9. Centralized production of energy helps create curtain of invisibility around environmental consequences of energy use. This is balanced by renewed interest in local energy production with effects of operations visible to local consumers. [Plausible, WP25]
10. I believe the main driver is increased population and economic growth. We have seen the developed economies grow significantly over the past 20 years, and now will see the developing/economies in transition go through the same rapid increase in energy consumption over the next 20 years. I think this is plausible but not desirable. [Plausible, WP32]
11. The economic development of underdeveloped countries, with the parallel increase in urbanization, demand for services, and intensification of energy use in transportation are going to drive energy use and conflicts over the equitable and appropriate use of energy. [Plausible, WP14]
12. While the trend to service sectors may reduce the overall energy consumption, it will increase the need for electricity in developed countries. The efficiency and pollution issues/solutions related to the increase will be big drivers of whether the result is cleaner or dirtier. [Plausible, WP14]
13. The demand for the same electricity intensive technologies enjoyed by the 1st world in the third world will create a huge need for power production on top of the extracting and manufacturing uses. [Plausible, WP14]
14. Societies will have to take responsibility for meeting the increased need through efficiency, renewables and fuel optimization -- best fuel for each end-use. [Both Plausible and Desirable, WP14]
15. Technology breakthroughs will make it easier for developing economies to participate in the global economy; developing economies will be able to rely on distributed generation (fuel cells, PV, microturbines, battery, small wind, etc.) not connected to a grid; the traditional infrastructure (wires, poles, etc.) will not be needed; instead, a new type of O&M infrastructure will be needed to support the specific DG in any given area. [Both Plausible and Desirable, WP27]
16. An international Energy Web will emerge along the West coast of North America (Canada, U.s., Mexico) and in other large geographic areas where it proves economically and environmentally viable to have large interconnected systems that go beyond the traditional transmission infrastructure. [Plausible, WP27]
17. Multinational companies will work to become energy independent (build their own generation units on site, negotiate their own energy supply contracts, etc.); traditional service by utilities will be challenged as never before since reliability and quality power will be more important as the world's economy becomes more dependent on the internet, computers, etc. [Plausible, WP27]
18. Growing use of natural gas, longer pipelines, LNG transportation. [Both Plausible and Desirable, WP40]

19. Extension of emissions trading market in CO2 internationally. [Both Plausible and Desirable, WP40]
20. Global economic growth. Global energy consumption will increase per gross product produced. Current trends indicate the ratio value of energy consumption per Gross Product is declining over time, and will most likely continue. [Plausible, WP 48]
21. Life standards promoted by marketing. This could go either way...increase energy consumption or reduce consumption. However, based on past record, it will most likely increase energy consumption. [Plausible, WP 48]
22. Rising demands for consumer goods (often transported at great distance), personal transport, appliances, etc.--along with population growth and urbanization--increase demand for commercial energy. [Plausible, WP34]
23. Significant attention to efficiency improvement in both the developing and the developed world, particularly in patterns of employment, transport, etc. related to settlement form could, in theory, slow expansion of consumption. [Desirable, WP34]
24. Increases in industrial production tied to new power generation such as hydro and coal in China. [Plausible, WP-18]
25. Changes in technology. One trend often referenced is the leapfrogging of wireless telecomm in developing countries. One interesting statistic that I have heard but not verified is that the average energy use for a cell phone (by including the entire infrastructure) is equivalent to a refrigerator. [Plausible, WP-18]
26. The growing recognition of global warming and its impacts will probably impact energy consumption the most in the next two decades. [Both Plausible and Desirable, WP24]
27. The trend toward higher oil prices will drive the search for less costly alternatives. [Both Plausible and Desirable, WP24]
28. New technologies will emerge that will result in more environmentally friendly energy alternatives. [Both Plausible and Desirable, WP24]
29. Increasing development and use of information technology. [Both Plausible and Desirable, WP41]
30. Increasing industrialization of emerging economies. [Both Plausible and Desirable, WP41]
31. Shift to a more services based economy based on telecommunications and other information technologies. [Both Plausible and Desirable, WP41]
32. Increased efficiencies achieved by businesses adopting sustainable business practices. Increasing numbers of businesses see the rewards that accrue to companies that reduce waste, decrease dependence on natural resources and man-made toxins and retain employees due to commitment to the bottom line AND the environment, we will see energy consumption drop. [Plausible, WP23]
33. It also appears that the notion of distributed power is gaining popularity and has some potential of achieving significant reductions in dependence on big power plant, transmission and distribution systems. [Plausible, WP23]
34. Tax policies will effect consumption - energy tax credits for business and gasoline and other energy taxes. [Plausible, WP23]
35. Energy consumption will be driven by media advertising imagery that glorifies consumption of all types. [Plausible, WP51]
36. By changing the definition of what is a desirable standard of living it could be possible to influence choices in modes of transport or energy use that would lead to higher standards of living on average - such as inexpensive, convenient high speed rail or co-housing. [Both Plausible and Desirable, WP51]
37. Sustainable business practices [Both Plausible and Desirable, WP23]
38. Alternative and distributed energy [Both Plausible and Desirable, WP23]
39. Population control [Both Plausible and Desirable, WP23]
40. Many developing countries desire what they perceive to be the greater prosperity and higher standard of living enjoyed by western countries. On a per capita basis the US uses far more enjoy than any other country on the planet. If developing countries use the US as their definition of success then worldwide energy use will likely dramatically increase. [Plausible, WP45]

41. In the transportation sector, many countries (Eastern Europe) are abandoning rail and other forms of mass transit in favor of the automobile. This trend is increasing demand for oil and placing incredible pressure on a road system not designed for this volume of traffic. [Plausible, WP45]
42. Distributed Energy Resources: the global energy industry is changing plans [Both Plausible and Desirable, WP21]
43. Markets that are keys to deployment of distributed energy products [Both Plausible and Desirable, WP21]
44. Globalization of trade in products and services will continue and will be [Both Plausible and Desirable, WP21]
45. Global economic growth will continue in proportion to development [Both Plausible and Desirable, WP21]
46. There will be continued emphasis on mitigating climate change. [Plausible, WP21]
47. Global climate change [Plausible, WP35]
48. Oil cartels and politically motivated manipulation of oil production [Plausible, WP7]
49. Increasing R&D on non-fossil fuel energy (natural gas, wind power, solar) [Both Plausible and Desirable, WP7]
50. A new approach to clean and safe nuclear energy production as well as success in nuclear fusion R&D [Both Plausible and Desirable, WP7]
51. Economic development in countries such as China will drastically increase transportation (cars, tourism), home construction, use of household appliances, and other energy consumption categories. [Plausible, WP7]
52. As readily available natural resources decline, more energy will be necessary to use new sources (deeper drilling, more refining, etc.) [Plausible, WP7]
53. Economic growth and relatively low cost of energy. [Both Plausible and Desirable, WP26]
54. Increased energy efficiency [Both Plausible and Desirable, WP26]
55. A growing world average energy consumption per capita as the quality of life in every country tends to improve to make the world socioeconomic growth socially sustainable. [Desirable, WP6]
56. A search for cleaner energy production technologies due to a better global ecological awareness. [Desirable, WP6]
57. Energy interchange agreements among neighbor countries for coping with energy seasonal crisis. [Desirable, WP6]
58. Conflicts among countries because of cheap energy being a limited non-accessible resource by some of them. [Plausible, WP6]
59. More efficient technologies for food production and processing. [Both Plausible and Desirable, WP6]
60. Decentralized electrical power generation [Both Plausible and Desirable, WP5]
61. Population Crash through spread of disease (e.g., TB) [Plausible, WP5]
62. Technologies that reduce the cost for capturing energy from wind, wave, sun, waterfall, and mechanical sources [Both Plausible and Desirable, WP5]

National Trends and Events Impacting Progress on Energy Efficiency
Contributions by Participants as of 11 March 2001

1. The rate of return on invested capital for energy efficiency initiatives will be required to compete with other investment opportunities. [Both Plausible and Desirable, WP 11]
2. Inappropriate price signals drive an increase in market interventions [Plausible, WP17]
3. Compact, long-lasting energy sources, including fuel cells and batteries, will power electronic devices such as personal computers. [Both Plausible and Desirable, WP17]
4. Continued development and reliance on fossil fuel energy generation with low first cost will subvert increased energy efficiency implementation. [Plausible, WP30]
5. Local currencies strengthen regional economies and help finance local energy production using renewable resources. [Both Plausible and Desirable, WP25]
6. Increased concern by consumers/businesses for how their actions impact the environment, including the impacts tied to increased energy consumption per capita. [Both Plausible and Desirable, WP32]
7. Increased consumer tracking of business performance related to environmental goals. [Both Plausible and Desirable, WP32]
8. Public and private life converges in the home - shopping, education, work, and entertainment. [Plausible, WP42*]
9. Improvements in the energy efficiency of manufacturing significantly temper the growth in energy demand. [Both Plausible and Desirable, WP42*]
10. An increase in power shortages, brownouts, and peak load price spikes, re-sensitizes the public [Plausible, WP42*]
11. The Midlife Crisis for Generation X. [Plausible, WP42]
12. The emergence of Generation Y. [Plausible, WP42]
13. People embrace compact urban form as a way to reduce automobile use and build community. Public shift in tastes is driven in part by high energy costs associated with long commutes and accessibility of alternative transportation systems. [Both Plausible and Desirable, WP3]
14. Consumers reject "McMansions" and embrace "Green Homes" designed to reduce energy and other resource consumption. New labeling requirements in residential and commercial real estate sales make the real cost of homes to the environment obvious to purchasers. [Both Plausible and Desirable, WP3]
15. Widespread brown outs and blackouts force homeowners and commercial landlords to turn to decentralized energy generation systems in order to assure reliability and sustainable, reliable technologies become cost effective. [Both Plausible and Desirable, WP3]
16. Price volatility and/or higher prices for energy will be passed on to enduser/consumers such that they get a very strong price signal; this will result in their demanding energy efficiency in all aspects of their home and business energy use; this will carry over into purchase decisions which will foster a strong demand "green or sustainable" products. [Both Plausible and Desirable, WP27]
17. Integration of the communications and energy technologies into an Energy Web concept that will reduce costs, improve the environment, allow end users to participate in the energy marketplace, etc. [Both Plausible and Desirable, WP27]
18. Growing reliance on a competitive market for making energy related allocations and decisions [Both Plausible and Desirable, WP40]
19. Success in designing economic incentives into efficiency decisions. Decreased reliance on populist funding and motivation for efficiency gains. [Both Plausible and Desirable, WP40]
20. Efficiency related sensor technologies are increasingly embedded in buildings and appliances. [Both Plausible and Desirable, WP 48*]
21. Knowledge value increasingly becomes the exploited resource base rather than energy. [Plausible, WP 48]
22. E-commerce is increasingly conducted from within the home. [Desirable, WP 48*]

23. Better mechanisms of public awareness, involvement and participation. [Both Plausible and Desirable, WP 48*]
24. [DELETED]
25. Resurgent coal and oil lobbies clash with environmental movement organizations and citizen backlash. Outcomes highly uncertain. [Plausible, WP34]
26. A rush to build new electricity supply and to rationalize the transmission grid will encourage a return to energy invisibility--papering over the problematic nature of energy use. [Plausible, WP34]
27. California energy crisis will lead to a growth in public power and a renewed interest in energy efficiency. Citizen ability to act is constrained by knowledge, social/cultural factors, supply chains, and aggressive pro-consumption marketing, media and merchandising. [Both Plausible and Desirable, WP34]
28. Merging of several concepts such as opportunity for alliances in advertising building on Eco-System Signals 2.1.5 and using the Models of Adoption and Diffusion to capture all types of consumers. [Both Plausible and Desirable, WP-18]
29. The growing interest in energy efficient and "green" design and construction. A compelling article in the Feb. 2001 issue of BUILDER magazine cites the importance to generation X of these issues. [Both Plausible and Desirable, WP24*]
30. The current "California" energy crisis will be a catalyst to spur more interest and investment in conservation and alternative power. [Both Plausible and Desirable, WP24]
31. The ongoing deregulation trend will dramatically change how power is generated and consumed. [Plausible, WP24]
32. The transformation from the age of information to the age of "ethics" will mean a growing consumer interest in consumers doing business with brands that adhere to responsible practices, including energy practices. [Both Plausible and Desirable, WP24*]
33. Responsibility models like the "Natural Step" will be come more common in our culture, spreading to business, government and our education system. [Both Plausible and Desirable, WP24*]
34. The refusal of regulators to allow energy price signals to flow through to consumers will inhibit penetration of energy efficiency and demand responsiveness. [Plausible, WP41*]
35. Energy efficient manufacturing processes and equipment will lower demand growth not only in the manufacturing sector but also in commercial and residential. [Both Plausible and Desirable, WP41*]
36. Policy makers will develop policies to sensitize consumers to the need to improve energy efficiency [Both Plausible and Desirable, WP41]
37. Energy usage and efficiency-related sensors and controls installed in commercial buildings, residences, and equipment such as HVAC will not only improve energy efficiency but allow real-time control of energy consumption [Both Plausible and Desirable, WP41*]
38. Smart appliances with easy to use interfaces that can bid into the on/off market and store energy become the norm [Both Plausible and Desirable, WP51]
39. Smart meters and communications systems allow automated accounting for time of day rates, control of distributed generation, energy storage systems and dispatchable shut off or turn down of various household loads [Both Plausible and Desirable, WP51]
40. Regional utilities work together to bring about 2.2.2 sooner than it would otherwise to give the regional a "sustainability advantage" [Both Plausible and Desirable, WP51]
41. Growth of interest in "green buildings" [Both Plausible and Desirable, WP23*]
42. Growth of alternative power sources and distributed power generation ideas [Both Plausible and Desirable, WP23*]
43. Low power and gas prices will increase demand [Plausible, WP23]
44. Increased recycling [Both Plausible and Desirable, WP23*]
45. Increasing prices for energy will cause consumers to use it more efficiently. [Both Plausible and Desirable, WP45]
46. Continued concern and more documentation from the scientific community will lend credibility to global warming and lead to more mitigation activity. [Both Plausible and Desirable, WP45]

47. Improvements in technology and increased prices will lead to more distributed generation. [Both Plausible and Desirable, WP45]
48. The national deployment of distributed energy resources (see 1.2.1) [Both Plausible and Desirable, WP21*]
49. Energy efficiency market transformations will trend upward mainly [Both Plausible and Desirable, WP21*]
50. Economic growth and market investment participation will increase [Both Plausible and Desirable, WP21]
51. Global warming will continue to be treated as fact [Both Plausible and Desirable, WP21*]
52. Energy and broadband communications will be subject to increasing… [Both Plausible and Desirable, WP21]
53. Global climate change [Plausible, WP35]
54. Increased penetration of digital communications and control technologies for managing energy use [Both Plausible and Desirable, WP35]
55. Mass customization [Both Plausible and Desirable, WP35]
56. Smart Appliances and Buildings [Both Plausible and Desirable, WP46]
57. Dematerialization of products will save much energy. With customization of materials great strides can be made in dematerialization - weight reduction, fiberglass cable to replace copper cable, etc. [Both Plausible and Desirable, WP7*]
58. Use of information technology (computers embedded in appliances, homes, facilities) will be used to reduce energy use and increase efficiency. [Both Plausible and Desirable, WP7]
59. Nanotechnology and molecular manufacturing may begin to have some impact, although the strongest impact will occur beyond fifteen years. [Both Plausible and Desirable, WP7]
60. Addressing the widely prevalent "discounting dilemma" can have a major impact on energy conservation. This refers to discounting distant time and space and focusing on the "here and now", i.e., taking the short-term view. [Desirable, WP7*]
61. Management rethinking can improve energy efficiency by forming high reliability organizations and by restructuring operations when introducing new technology such as robots and information systems. [Both Plausible and Desirable, WP7*]
62. Peak demand management, increased transparency of energy cost and controllability at the home level, along with the management of energy at the planned community level, will greatly reduce the pace of increase in energy demand [Both Plausible and Desirable, WP26]
63. Public debate over use of tax relief for local community infrastructure versus for individual gains [Desirable, WP5]
64. Intercorporate collaboration for new, sustainable product designs / national and international sustainable design competitions [Both Plausible and Desirable, WP5*]
65. Tax policy changes that will make stockholders responsible for corporate environmental damage, even after a stockholder has sold such shares. Stockholders must learn to think like indigenous peoples [Desirable, WP5*]
66. Federal funding for energy research is likely to decline, reducing true platform innovation and forestalling gains on new sustainable energy technologies [Plausible, WP5]
67. Broad access to selling surplus energy back into the Grid will open up small and micro power generation electrical energy market niches [Both Plausible and Desirable, WP5*]

Regional Trends Influencing Adoption of Electric Energy Efficiency
Contributions by Participants as of 11 March 2001

68. Are the citizens of the NW willing to consider "total cost" principles as part of the energy efficiency equation vs having business pay the bill. [Both Plausible and Desirable, WP 11]
69. State regulatory and legislative incentives will advance energy efficiency in the region. [Both Plausible and Desirable, WP30]
70. Increased penetration of energy efficient messages to impact consumers' day-to-day lives and make changes in behavior. [Both Plausible and Desirable, WP32]
71. Increased concern about the environmental impacts of electricity consumption and action to mitigate that. [Both Plausible and Desirable, WP32]
72. Recognizing that social perspectives on demand offer a more accurate conception of energy use, policy analysis is able to explore a larger number of causal accounts and entertain a wider range of interventions. [Both Plausible and Desirable, WP42]
73. Lifestyle engineering" by businesses, supported by government action (e.g., through subsidies for consumption of new housing, highways, fossil fuels etc.) increases adverse environmental impacts. [Plausible, WP42]
74. Saving time to complete activities like clothes washing, drives the use of ever more efficient mechanical substitutions for manual work. [Plausible, WP42]
75. In her book "Cities and the Wealth of Nations" Jane Jacobs builds a strong case‹economically, socially, and ecologically‹for a system of strong regional economies, producing locally for local consumption. This vision, if encouraged, could effect significant change in energy consumption. [Both Plausible and Desirable, WP25*]
76. What are the economic tools for encouraging strong regional economies--local control of access to land on an affordable basis, local generation of credit, local markets. What would encourage development of these tools--what is obstructing them? [Both Plausible and Desirable, WP25*]
77. Development of a new consumer ethic that makes consumers responsible for shaping their own regional economy through organized demand for locally produced goods that meet environmental and social criteria. Community Supported Agriculture for instance. [Both Plausible and Desirable, WP25*]
78. Cultivation through education of concern to know the "stories" of the items we use in our daily life--where were they made, under what conditions, using what resources. The more of these stories we know the higher the potential for a "raised" standard of living--quality, not quantity. [Both Plausible and Desirable, WP25]
79. A re-emphasis of place-based education--developing knowledge and appreciation of the people, land, and community of a particular region leads to appreciation of unique products created in that region--local consumption from local resources using less energy. [Both Plausible and Desirable, WP25]
80. Small towns depressed by downturns in timber and agriculture are revived because of their attractiveness as human communities. This trend is enabled by public investment in high tech infrastructure needed to attract information based technology companies. [Both Plausible and Desirable, WP39]
81. The Pacific Northwest becomes develops and builds high speed rail from Vancouver BC to Medford with integrated local connections to mass transit, thus reducing energy use significantly. [Desirable, WP39]
82. Price signals that reflect the real cost electricity (energy) will drive consumers to demand energy efficiency in all aspects of their domestic and business decisions. [Both Plausible and Desirable, WP27]
83. Increasing exposure of consumers to time specific energy values and the means to respond in financial, behavioral, and technical ways. [Both Plausible and Desirable, WP40]
84. Consumers increasingly willing to pay more for energy-efficiency homes above code mandates. [Desirable, WP 48*]
85. Marketing products as more energy-efficient becomes an integral part of home building strategies. [Desirable, WP 48*]

86. Strong emphasis on environmental issues, equity and social inclusion. [Both Plausible and Desirable, WP 48*]
87. Recognition that device-centered approaches are limited in their ability to represent the real-world conditions of energy consumption. [Both Plausible and Desirable, WP 48]
88. Significance of the Endangered Species Act designations for fish and wildlife for the energy system. [Both Plausible and Desirable, WP34]
89. Rapidly rising energy prices. [Both Plausible and Desirable, WP34*]
90. Threats to the integrity of the Bonneville Power Administration. [Plausible, WP34]
91. Gains in strength of grassroots movements and environmental and "livability" NGOs.* [Both Plausible and Desirable, WP34*]
92. Increase in the size and importance of the green business community. [Both Plausible and Desirable, WP34*]
93. Conservation ethic and constrained supply support small comfort concessions (a few degrees shift on the thermostat and reduced settings during unoccupied hours) in addition to win-win technological advances such as individually controlled dimming for lights. [Both Plausible and Desirable, WP-18]
94. Growing interest in the building of more energy efficient buildings, ie: LEED certification, G-Rated Portland program, Earth Smart, Energy Star etc. [Both Plausible and Desirable, WP24*]
95. Growing interest due to rising demand in energy efficient new homes and retrofit of existing, tighter houses, more insulation, healthier, less toxic materials, and energy efficient. [Both Plausible and Desirable, WP24]
96. Growth of "Simplicity" movement, Natural Step in business and government. More and more organizations whose goal is to promote a sustainable environment and society. [Both Plausible and Desirable, WP24]
97. The growing interest in "green" and or "pollution" taxes and how these concepts might have a role in energy conservation. [Both Plausible and Desirable, WP24*]
98. The idea of "branding" the Northwest as a region where "green" products and practices are part of our culture and economic fabric. [Both Plausible and Desirable, WP24*]
99. Artificially low energy costs will continue to dampen incentives for energy efficiency [Plausible, WP41]
100. Low energy costs will create incentives for energy-intensive high-technology industries such as those in the Silicon Forest to locate in the region, leading to a more affluent, energy consuming lifestyle [Plausible, WP41]
101. As a counter-trend to 3.2.2., the perceived NW lifestyle will continue to attract residents who are particularly attuned to the conservation/environmental ethic, and who will therefore be more inclined to engage in energy efficient practices [Both Plausible and Desirable, WP41]
102. Co-housing, smart homes/appliances, improved mass transit [Both Plausible and Desirable, WP51]
103. Installation of hardware solutions will be more effective than media oriented programs - i.e. installing a CFL will be much more effective in the long term than reminding people to turn off their lights to reduce consumption. [Both Plausible and Desirable, WP51]
104. Rise of electricity costs will drive economic dislocation and increase the need to take information infrastructure to rural areas, so that education and economic development can offset dislocation caused by forces outside the region. [Plausible, WP51]
105. "Green building" and clean manufacturing increase. [Both Plausible and Desirable, WP23*]
106. Residential and commercial power users given access to demand/energy use information and ability to control. [Both Plausible and Desirable, WP23*]
107. Tax or other incentives to conserve power [Both Plausible and Desirable, WP23*]
108. Major power-using industries reduce demand, develop alternative, distributed and non-polluting power sources [Both Plausible and Desirable, WP23]
109. Accomplishing energy efficiency in the public sector has continued to be a particularly difficult task for several years. [Plausible, WP45]
110. Uncertainties created by deregulation have created devisiveness in the marketplace and make it more difficult to accomplish energy efficiency. [Plausible, WP45]

111. Until the northwest actually experiences a black out it will continue to be difficult to get people's full attention on conservation issues. [Plausible, WP45]
112. There will be a trend toward increasing deployment of distributed resources [Both Plausible and Desirable, WP21*]
113. Environmental preservationist sentiments will level off and be replaced [Both Plausible and Desirable, WP21]
114. Endangered species recovery measures will increasingly emphasize [Both Plausible and Desirable, WP21*]
115. Population densities will increase in regional urban areas with positive… [Both Plausible and Desirable, WP21*]
116. The region will be a leader in the energy and broadband communications [Both Plausible and Desirable, WP21]
117. It seems as though the fundamental question here is which dominates, technology driven change or social change, change in values, etc. I think the later is a black hole. We have to recognize it and adapt strategies to it but can't shape it. Adapting advances in technology to evolving social structures and values is where the focus should be. [Both Plausible and Desirable, WP35]
118. Greater desire for time-saving appliances, need for built-in efficiencies. [Both Plausible and Desirable, WP46]
119. Introducing future thinking in schools, working with scenarios, SimCity, and other games that focus on the future environment options (for example, public vs. private transportation). [Both Plausible and Desirable, WP7*]
120. Introducing cross-impact analysis in schools to show how different trends interact in complex adaptive systems. Study "unintended consequences" of energy actions. [Both Plausible and Desirable, WP7]
121. Develop TV and school programs that examine innovative urban environments. [Both Plausible and Desirable, WP7*]
122. Utilize means to counter the "discounting dilemma", using telecommunications (such as precursor trends elsewhere) that can suggest future energy problems and solutions for the Northwest [Both Plausible and Desirable, WP7*]
123. Initiate the rethinking of local/regional governance to match the technology of the 21st century, thus providing a step in improving energy management. (Much of our current governance is based on 19th century technology. [Both Plausible and Desirable, WP7]
124. Inexorably increasing connection between energy and water, with biggest product transformations in near term in water area, more developed but resource constrained and regulated regions of the world drive policy e.g. Western Europe, Japan [Plausible, WP26]
125. Appliances individual meter and remotely report their energy use, allowing energy users to identify key energy consumption sources / preferred rates are given to homes that have and retain self-metering appliances [Both Plausible and Desirable, WP5]
126. Recycling of post-consumer products expands with the introduction of local "garage sale" internet groups / neighbor hood barter and recreational shopping reduce pressures to travel to malls for weekend diversion / additional "local" recreational amenities flourish [Desirable, WP5]
127. Formerly disposable products (e.g., aerosol cans) become replaced by more costly, but fully recyclable, products / leading to increased demand for local micro-economies with JIT door-to-door service calls. [Desirable, WP5]

APPENDIX D

Clarification of National/Regional Trends/Events

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

National Trends

Triggering Question:
"What national trends/events would you consider as having the greatest impact on progress in electric energy efficiency, over the next fifteen years?"

(1 - Set A) THE RATE OF RETURN ON INVESTED CAPITAL FOR ENERGY EFFICIENCY INITIATIVES WILL BE REQUIRED TO COMPETE WITH OTHER INVESTMENT OPPORTUNITIES (WP11; National)
Author not available for clarification. Idea not considered for deliberations.

(2 - Set A) INAPPROPRIATE PRICE SIGNALS DRIVE AN INCREASE IN MARKET INTERVENTIONS (WP17; National)
It is about the costs associated with energy uses that don't show up on the price signal of energy, such as environmental and societal costs. Current low prices do not reflect the actual cost of electricity.

(3 - Set A) COMPACT, LONG-LASTING ENERGY SOURCES, INCLUDING FUEL CELLS AND BATTERIES, WILL POWER ELECTRONIC DEVICES SUCH AS PERSONAL COMPUTERS (WP17; National)
Has been touched on by several people. Looking at some uses that have been on or off the grid that may not be seen as an efficiency. Things other than fuel cells and batteries that have been there, such as devices to produce basic electricity to small uses that may somehow impact the large use of electricity on the long run. Things are being pulled off grid, distributed resources etc.

Q: Can this contribution be eliminated? Is there a distinction between this point and others?

A: No do not eliminate.

(4 - Set A) CONTINUED DEVELOPMENT AND RELIANCE ON FOSSIL FUEL ENERGY GENERATION WITH LOW FIRST COST WILL SUBVERT INCREASED ENERGY EFFICIENCY IMPLEMENTATION (WP30; National)
I think that although we are seeing dramatic increases in energy costs, this increase wouldn't add up to trigger a significant change in the residential sector energy usage. For a lot of business also, costs are a small portion of their cost structure. So increasing prices won't influence energy usage. That's why it will require alternatives such as programs to go out and influence energy usage.

(5 - Set A) IN RESPONSE TO STANDARDIZATION AND IMPERSONALTION OF GLOBAL ECONOMY, LOCAL COMMUNITIES WILL EMPLOY INNOVATIVE CONSUMER DRIVEN TOOLS SUCH AS LOCAL CURRENCIES TO ENCOURAGE DEVELOPMENT OF IMPORT REPLACING PRODUCTS INCLUDING LOCAL ENERGY GENERATION FROM RENEWABLE SOURCES
Susan: Dr. Linstone spoke about the trend in increased globalization and increased localization. The Schumacker Society sees consumer identified with local community as distinct from global economy. A strength of global economy is use of local currency. One way local currency can be introduced and issued through finance of local technology e.g. kilowatt hr. notes. Circulated in local economy and redeemed through local utility. Issuing of kilowatt hr. notes on regional basis and around the world is a way to encourage renewable energy production at the local level. Look at economic tools like local currency as a way to encourage this activity.

Q: Not sure of local currency and how issued?

A. Consumer based incentives; local government can not issue them. Consumer groups can issue them (e.g. non-profit agencies, CDCs etc.) One problem is trust in local currency, what's backing it or if local energy production is backing it. It's an elegant tool for encouraging diverse development of regional economies.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(6 - Set A) INCREASED CONCERN BY CONSUMERS/BUSINESSES FOR HOW THEIR ACTIONS IMPACT THE ENVIRONMENT, INCLUDING THE IMPACTS TIED TO INCREASED ENERGY CONSUMPTION PER CAPITA (WP32; National)

It is about some key things in terms of energy usage awareness. The household consumer may not be aware of how energy usage contributes to global warming or other environmental damages. Need for a clear message hoping that people will get a greater realization from that. Information on how people can consume energy more efficiently.

(7 - Set A) INCREASED CONSUMER TRACKING OF BUSINESS PERFORMANCE RELATED TO ENVIRONMENTAL GOALS (WP 32; National)

Tom Kerr: Generation X is demanding green buildings. Related TRI like inventories for company use. Extending to energy use and efficiencies and other environmental things. This would be another motivator to purchase efficiency and cleaner things.

C: From a corporate perspective it is important that holding business accountable for environmental stewardship translates into winning in the market place or it will stimulate PR responses rather that changes in business processes.

C:Example, this gets off track. Management at (the Pagagoni Co.) that makes jumpers and front loads decided to breach four dams on same river. PR aspect is dicey.

Q: Is there technology to allow expansion of TRI?

A: No. just applies to toxic waste.

(8 - Set A) PUBLIC AND PRIVATE LIFE CONVERGES IN THE HOME - SHOPPING, EDUCATION, WORK, AND ENTERTAINMENT (WP42; National)

Author not available for comments. Idea not considered for deliberations

(9 - Set A) IMPROVEMENTS IN THE ENERGY EFFICIENCY OF MANUFACTURING SIGNIFICANTLY TEMPER THE GROWTH IN ENERGY DEMAND (WP42; National)

Author not available for comments. Idea not considered for deliberations.

(10 - Set A) AN INCREASE IN POWER SHORTAGES, BROWNOUTS, AND PEAK LOAD PRICE SPIKES, RE-SENSITIZES THE PUBLIC (WP42; National)

Author not available for comments. Idea not considered for deliberations

(11 - Set A) THE MIDLIFE CRISIS FOR GENERATION X (WP42; National)

Author not available for comments. Idea not considered for deliberations.

(12 - Set A) THE EMERGENCE OF GENERATION Y (WP42; National)

Author not available for comments. Idea not considered for deliberations.

(13 - Set A) PEOPLE EMBRACE COMPACT URBAN FORM AS A WAY TO REDUCE AUTOMOBILE USE AND BUILD COMMUNITY. PUBLIC SHIFT IN TASTES IS DRIVEN IN PART BY HIGH ENERGY COSTS ASSOCIATED WITH LONG COMMUTES AND ACCESSIBILITY OF ALTERNATIVE TRANSPORTATION SYSTEMS (WP3; National)

Gail: I want to adopt this comment. It is important in overall energy use. We see populations moving to suburban and rural areas as telecommunication technologies change. It is not necessary to be in city. You can live in small communities and operate the same way. If you take urban nodes to these small communities you can reduce energy consumption. This impacts population growth in North America.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(14 - Set A) CONSUMERS REJECT "MCMANSIONS" AND EMBRACE "GREEN HOMES" DESIGNED TO REDUCE ENERGY AND OTHER RESOURCE CONSUMPTION. NEW LABELING REQUIREMENTS IN RESIDENTIAL AND COMMERCIAL REAL ESTATE SALES MAKE THE REAL COST OF HOMES TO THE ENVIRONMENT OBVIOUS TO PURCHASERS (WP3; National)
Author not available for comments. Idea not considered for deliberations.

(15 - Set A) WIDESPREAD BROWN OUTS AND BLACKOUTS FORCE HOMEOWNERS AND COMMERCIAL LANDLORDS TO TURN TO DECENTRALIZED ENERGY GENERATION SYSTEMS IN ORDER TO ASSURE RELIABILITY AND SUSTAINABLE, RELIABLE TECHNOLOGIES BECOME COST EFFECTIVE (WP3; National)
Author not available for comments. Idea not considered for deliberations.

(16 - Set A) PRICE VOLATILITY AND/OR HIGHER PRICES FOR ENERGY WILL BE PASSED ON TO ENDUSER / CONSUMERS SUCH THAT THEY GET A VERY STRONG PRICE SIGNAL; THIS WILL RESULT IN THEIR DEMANDING ENERGY EFFICIENCY IN ALL ASPECTS OF THEIR HOME AND BUSINESS ENERGY USE; THIS WILL CARRY OVER INTO PURCHASE DECISIONS WHICH WILL FOSTER A STRONG DEMAND "GREEN OR SUSTAINABLE" PRODUCTS (WP27; National)
Straight forward from triggering question. Prices will affect energy efficiency.
Question: How that translate to greener energy products? Answer: Marketing of green products, increasing consumer awareness, will bring change by influencing them to purchase greener power.
Comment: Higher prices may not lead consumers to purchase greener power. Answer: Increase cost of energy may bring more competition in the high price market, making greener energy sources more competitive.
Comment: Green Power Program has been successful. Recent price increases are not reflected on recent budgets.
Comment: Renewable programs allows the ability for a costumer to lock in a price. Fossil fuel prices are market driven. So, greener products may be insulated from higher (or lower) prices from fossil sources.

(17 - Set A) INTEGRATION OF THE COMMUNICATIONS AND ENERGY TECHNOLOGIES INTO AN ENERGY WEB CONCEPT THAT WILL REDUCE COSTS, IMPROVE THE ENVIRONMENT, ALLOW END USERS TO PARTICIPATE IN THE ENERGY MARKETPLACE, ETC. (WP27; National)
Mike Hoffman referred to this, mine is broader. John: Idea of integration between communication technology and energy integration. I want the energy web concept kept. Not new, but I would like to see the idea of the energy web captured.
What is Energy web? Answer: Computers, smart chips, fiber optics, etc. used in the communication industry. A melding of energy industry and communications industry will help consumers understand the use of energy on their appliances, for example.

(18 - Set A) GROWING RELIANCE ON A COMPETITIVE MARKET FOR MAKING ENERGY RELATED ALLOCATIONS AND DECISIONS (WP40; National)
Terry: The context of energy consumption decisions within a competitive market, less regulation of market. That offers a great opportunity to get decisions down to others. Program parameters driven by improved price signals and competition in the market.
Q: to you mean a price signal to consumer
R: depends, may be consumer or an intermediary on behalf of consumer. It would work well if down to consumer.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(19 - Set A) SUCCESS IN DESIGNING ECONOMIC INCENTIVES INTO EFFICIENCY DECISIONS. DECREASED RELIANCE ON POPULIST FUNDING AND MOTIVATION FOR EFFICIENCY GAINS (WP40; National)

Touched on this when described 18. It is important to achieve energy efficiency to give the correct signal to consumers so they can have a more diverse and robust response rather than design specific policy to accomplish this. Empower consumers to adopt efficiency technology. Efficiency programs that are run by utilities are problematic based, instead of allowing consumers to respond to their own interest. Programs like insulation, light bulb efficiency incentive, etc. replacing a solution to a problem with what might be a variety of responses that the consumer may have if they did it on their own.

Q: What does populist funding and motivation for efficiency…mean?

Terry: This is the term that popped in my mind. Efficiency programs that are run by utilities or other organization that are programmatic based rather that allowing consumer to respond to their interest.

(20 - Set A) EFFICIENCY RELATED SENSOR TECHNOLOGIES ARE INCREASINGLY EMBEDDED IN BUILDINGS AND APPLIANCES (WP48; National)

Electronics embedded in appliances that would help reduce energy consumption by influencing behavior.

Comment: Smart appliance task force is very aware of this. Open protocol for individual consumers to have choices.

Comment: Appliances have energy saving modes on them.

(21 - Set A) KNOWLEDGE VALUE INCREASINGLY BECOMES THE EXPLOITED RESOURCE BASE RATHER THAN ENERGY (WP48; National)

John: The word "exploited" was a concern. It was subjective. It could remove the focus of energy efficiency. Consumer knowledge becomes more important than energy value.

(22 - Set A) E-COMMERCE IS INCREASINGLY CONDUCTED FROM WITHIN THE HOME (WP48; National)

From the category for pushing technology in the residential and commercial sector. Most of the utilities are offering home energy audits etc.

Comment: I've been challenged on this point before. Really the net energy impact of e-commerce may be negative. Even if people are not driving to work, they may be driving to other locations. Answer: Consumer having access on e-commerce to have more information on energy efficiency issues.

Example: When computers came out people said offices were going to go paperless.

Comment: We see in our local downtown an exchange of information that affects the market and the purchase of efficient energy.

Comment: Electronic flow of information is vital. Not necessarily saving energy of travel etc.

Comment: Valuable in educating the shopper. Can contribute into training local voices which can influence the market.

(23 - Set A) BETTER MECHANISMS OF PUBLIC AWARENESS, INVOLVEMENT AND PARTICIPATION (WP48; National) (*DELETE*)

(24 – Set A) [DELETED]

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(25 - Set A) RESURGENT COAL AND OIL LOBBIES CLASH WITH ENVIRONMENTAL MOVEMENT ORGANIZATIONS AND CITIZEN BACKLASH. OUTCOMES HIGHLY UNCERTAIN (WP34; National)

Lauren: It was announced that Bush has changed mind about… What we will see are on-going environmental movement and resurgence. Not clear how these will play out. It works to raise citizen awareness and to amplify other possibilities and tends.

Q: Do you anticipate stronger opposition?

R: It is uncertain. Regarding climate, politics, agencies like NRDC, etc, most big environments agencies are not reactive. They don't see it as something they can win. They see little environmental action.

(26 - Set A) A RUSH TO BUILD NEW ELECTRICITY SUPPLY AND TO RATIONALIZE THE TRANSMISSION GRID WILL ENCOURAGE A RETURN TO ENERGY... (WP34; National)

Cautionary note that what we are likely to see is that efficiency may mean installing smaller utilities and tuck them on the corners. Nine billion people in the planet will be a significant problem if it is translated only into efficiency. That tends to defect attention to the larger long term problem. Standard ecosystem deterioration are not to be avoided.

Question: Is population growth driving all this? Answer: Population growth and increase in energy demand per capita are increasing problems. Focus on replacing supply to reduce short term supply problems will distract attention from a longer term problem.

Question: could you express your concern on what you would like to see? Answer: Hope is that we could organize energy use in more effective ways and more modest impacts. Like ecological footprints in the planet. Continuing present rates of consumption may lead to unsustainable situations.

(27 - Set A) CALIFORNIA ENERGY CRISIS WILL LEAD TO A GROWTH IN PUBLIC POWER AND A RENEWED INTEREST IN ENERGY EFFICIENCY. CITIZEN ABILITY TO ACT IS CONSTRAINED BY KNOWLEDGE, SOCIAL/CULTURAL FACTORS, SUPPLY CHAINS, AND AGGRESSIVE PRO-CONSUMPTION MARKETING, MEDIA AND MERCHANDISING (WP34; National)

Lauren: The difference here is serious talk about California owning part of the transportation grid and previously regarding privatization. Even if the consumer is motivated by price there are constraints, e.g. living a respectable live, even if you want to change there are problems with supply chains, aggressive pro-consumption market, etc.

C: I agree that there are barriers to finding solutions, including knowledge barriers, price barriers, etc. The key is that there are technologies and services available but people need to find them. Fat Earth can be a conduit to this knowledge. The consumer is important but it is a generational thing that will take time. Business is moving ahead of the consumer but there are issues like liability, etc.

C: My comment is that the crisis is stimulating interest but the normal action of stepping in and taking advantage of the crisis is not happening because the crisis is sucking up the money that could have been used to market transformation.

C: We may have manufacturers moving ahead. There is a big piece of supply chain that doesn't have knowledge, skill, interest in taking risk. The Alliance can fit into this. There are bottlenecks in between.

C: Aggressive pro-consumption marketing is endemic to California like a suntan is to a beach in CA in July. Usually with mixed results due to lack of focus in organizations. Public power is doing well in information dissemination.

Q: How do you see the formation of public power related to efficiency?

A: Don't have a good answer. It could go in both directions, it could be an ossified administration of something that is less effective. I don't know how it will play out.

Q: What are the average retail rates for two California Power companies (PGE and La PWE- not sure?)

A: PGE is 12 cents per kilowatt and La PWE is about 8-9 cents per kilowatt.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

C: There appears to be two distinct thoughts, how do you tie them together?

A: Don't know that I can. A non-issue that is now an issue relates to a new way to approach public power but there are issues that effect expansion.

By public power do you man the state is taking over power industry or local utilities

Both, state is entertaining taking pieces of industry. Cities acting is aggregators is till possible

Doug, are you saying that public power in CA the reason there is 8-9cents and PGE is 12 cents is that they can sell at high price to subsidize their cost an keep cost down?

Your conclusion is incorrect, but premise is correct.

Investor owned is higher because they don't have access to public subsidized dollars.

They have tax advantages.

(28 - Set A) MERGING OF SEVERAL CONCEPTS SUCH AS OPPORTUNITY FOR ALLIANCES IN ADVERTISING BUILDING ON ECO-SYSTEM SIGNALS ... TO CAPTURE ALL TYPES OF CONSUMERS WP18; National)

A lot of the concepts such as advertisement, there are synergies there, such as the current California energy crisis. Different sources run adds, so there is a potential for synergy between all these sources to have synergy in response to a ecosystem signal. The second part of it, is that in advertisement we have to have a variety of signals to approach all different types of costumers.

Question: What is the definition of Ecosystem signal? Something that is coming up such as a current environmental issue which will help make people more aware of environmental problems.

Comment: Issues that are amplified on the news such as water level at the Gorge.

(29 - Set A) THE GROWING INTEREST IN ENERGY EFFICIENT AND "GREEN" DESIGN AND CONSTRUCTION ... IMPORTANCE TO GENERATION X OF THESE ISSUES (WP24; National)

Terry: Being in the business of marketing green products, I pay attention to market studies. The interest in energy efficiency and green buildings, etc is very low (e.g. 6-7 % willing to pay premium price..)

Article talked about marketing to generation X. The change in this study is incredible. Numbers like 30% said they would pay a premium for energy efficient design. The number of people who didn't care is like 1%. These are significant changes in market place. It is consumer that drives this. I look forward to working with this generation.

Q: Do you think this is a sign of significant change in approach?

R: Yes a huge change. In last few years, there has more discussion about it. It is embarrassing how much in the closet this has been. Now you see homebuilders take this issue on for profit, this is huge change.

(30 - Set A) THE CURRENT "CALIFORNIA" ENERGY CRISIS WILL BE A CATALYST TO SPUR MORE INTEREST AND INVESTMENT IN CONSERVATION AND ALTERNATIVE POWER

It seemed that it is our most current and effective model to know what goes right and what goes wrong. We need to look carefully at that before going into the future.

Comment: In fact it has been a disappointment that the current crisis, instead of stimulating investment, like the 12 billion dollars for costs of higher energy which has dried up CA's utilities accounts for investing in new energy sources.

Comment: It may be because with rates kept down in CA, the utilities spent billions of dollars but the public never felt that impact. Had they felt the impact it would probably serve as a catalyst for new energy efficient sources.

Answer: Yes, rates are frozen in artificially low levels in CA. When they became unfrozen the prices spiked and action had to be taken to hold them down.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(31 - Set A) THE ONGOING DEREGULATION TREND WILL DRAMATICALLY CHANGE HOW POWER IS GENERATED AND CONSUMED (WP24; National)

Tom: Statement looks further forward that current situation. Deregulation has been set back by what happened in CA. This is similar to the deregulation of airlines, with new agencies and new products coming to market.

Q: Does your comment regarding deregulation refer to how power is generated…or using different technologies, or how power gets to market?

A: Probably all.

(32 - Set A) THE TRANSFORMATION FROM THE AGE OF INFORMATION TO THE AGE OF "ETHICS" WILL MEAN A GROWING CONSUMER INTEREST IN CONSUMERS DOING BUSINESS WITH BRANDS THAT ADHERE TO RESPONSIBLE PRACTICES, INCLUDING ENERGY PRACTICES (WP24; National)

We were at the beginning of the time that we are seeing a change in the market, where there is a melding of economics decisions and behavior issues. In the future consumers are making their decisions on their perceptions of what are the social priorities and responsibilities of the corporations as being part of the society, such as Home Depot. As part of those decision making processes, energy efficiency is going to be an important issue.

Question: It is a relatively small portion, advocacy groups elevate the business to the front page (e.g. Nike). Business are moving because of such concerns. It is a long fight. Answer: The study that I was citing earlier diverges from this. There is change happening now.

Comment: The study is showing that consumers are looking at the "causes" side of the brand.

(33 - Set A) RESPONSIBILITY MODELS LIKE THE "NATURAL STEP" WILL BE COME MORE COMMON IN OUR CULTURE, SPREADING TO BUSINESS, GOVERNMENT AND OUR EDUCATION SYSTEM (WP24; National)

Tom: I am involved with The Natural Step. The basic concepts center around business responsibility to environment and benefits of being responsible. Want to make the point that these concepts are spreading to government, education but initiated by business.

(34 - Set A) THE REFUSAL OF REGULATORS TO ALLOW ENERGY PRICE SIGNALS TO FLOW THROUGH TO CONSUMERS WILL INHIBIT PENETRATION OF ENERGY EFFICIENCY AND DEMAND RESPONSIVENESS (WP41; National)

Flip side of John's point. I'm the resident pessimist here. I don't see any particular movement by policymaking for passing price signals to the consumers. Those price signals are important to create demand responsive reactions. But there has not been stimulus for consumers today to respond to this.

Comment: I agree, and schizophrenia is a political issue. Talks about environment issues and the need to avoid price increases at the same time. They have to get over the issue of being scared to pass price signals to consumers.

Comment: Governor of CA says he can solve this problem in 30 seconds by increasing the price of energy.

Question: Are leaders facing the constituents? Vested interest of regulators? Answer: Utilities are resistant to use their consumer base for this.

Comment: Real politics in the ground, public officials and regulators. Consumer organizations reps say consumers did not vote for utility regulation.

Comment: There are ways to pass price signals to consumers that may not represent on price increases to consumers.

Comment: Stranded cost replacements. Consider the economic free market model may not apply completely to the utility area.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(35 - Set A) ENERGY EFFICIENT MANUFACTURING PROCESSES AND EQUIPMENT WILL LOWER DEMAND GROWTH ... IN COMMERCIAL AND RESIDENTIAL (WP41; National)

Dick: A lot of manufactured processes will become more energy efficient. Equipment and appliances will become more efficient. Concern is will manufacturing processes become more energy efficient?

(36 - Set A) POLICY MAKERS WILL DEVELOP POLICIES TO SENSITIZE CONSUMERS TO THE NEED TO IMPROVE ENERGY EFFICIENCY (WP41; National)

The intent is that there seems to be an effort by policy makers to create an understanding and sensitivity to energy efficiency to the public. The important thing here is that policy makers realize that there is this need.

Question: Are you talking about new policy or suggesting building on what has been there or have been started already? Answer: Both, but I was more thinking on new policy.

Question: Who are the policymakers? Answer: Federal, state, and local legislators and regulators and the people that influence those folks.

Question: Manufacturing process efficiency… talks about new advances in process efficiencies? Answer: No, but it can include those, but I was thinking more broadly on this.

(37 - Set A) ENERGY USAGE AND EFFICIENCY-RELATED SENSORS AND CONTROLS INSTALLED IN COMMERCIAL BUILDINGS, RESIDENCES, AND EQUIPMENT SUCH AS HVAC WILL NOT ONLY IMPROVE ENERGY EFFICIENCY BUT ALLOW REAL-TIME CONTROL OF ENERGY CONSUMPTION (WP41; National)

Doug: Substantial improvement in controls that will be sensitive to energy usage. This has been discussed. It can be deleted.

(38 - Set A) SMART APPLIANCES WITH EASY TO USE INTERFACES THAT CAN BID INTO THE ON/OFF MARKET AND STORE ENERGY BECOME THE NORM (WP51; National)

Mike: preface – Bonneville power has set up demand exchange that allows people to be paid for production and load. This goes around our current rate structure. Bonneville sees the benefits. This say there will be smart appliances in future. Energy storage in future will be a norm at sub-stataion and end user level. Smart appliances will be her in 5 yrs and technology already exists

Q: when you say energy storage, that saves capacity but increases energy use:

A: that is an applicable technology but I think of value of shifting peak demand. RE northwest if you need to build new facilities to meet demand…

UK has a storage battery that runs as a fuel sell. With this you can shave peaks without same impact soon system. This can levelize wind load. It has issue for transmission system and power cost to energy company to make up difference.

Q: do those technologies have energy impact? E.g. increasing energy use increases emissions

A: Not necessarily, there are losses in those systems and in transmission systems. It wouldn't increase energy use per se but a choice I would make

C: We have that now with chilled water storage, but difference is they are e played with tariff with on Vs off pea. Do technologies today need to be enhanced and driven by ,market signal

A: Yes you need time of day rates to make that possible

Q: How does this relate to net metering?

A: At the residential level if you have an energy storage system in your home you size it and not peak it back. If you size the system, which is a value, it would not be net metering system. The utility system also has to throw in value to make it useful.

Q: How would system reliably deal with anomalies?

A: It should be no problem. People turn motors on and off all the time. This would have a more positive effect. It stabilizes voltage on distribution feeder. Relative to time of day and rates is energy web, it

helps you make a decision. At 5cents per kilowatt I would not make a decision but will at 20cents I would.

C: It is a 3-part system. Need devices at both levels. In UK we use base load to manage peaks.

(39 - Set A) SMART METERS AND COMMUNICATIONS SYSTEMS ALLOW AUTOMATED ACCOUNTING FOR TIME OF DAY RATES, CONTROL OF DISTRIBUTED GENERATION, ENERGY STORAGE SYSTEMS ... (WP51; National)

Mike: A lot of this has been covered. It is what will happen. We think the energy web is the future so it can bring about benefits sooner.

Q: Has this been covered?

A: As a contribution it should stay because of communications and automated accounting. Without it these innovations will not take place.

Q: Would it be fair to group ideas?

NO.

C: There is a set of conversations about how communications interfaces with utility and devices that interface with consumer.

Q: When you weigh energy leverage do you mean both?

A: Yes.

C: There are two issues, management of energy load on the utility network and efficiency load of devices. Efficiency is gained but we are not attacking fundamental point. Also need to gain efficiency in demand.

A: This is tackling the role of efficiency to demand. The economic signal that comes back is "I don't choose to use this now", which is an economic efficiency choice. I think this is a process of incremental improvement in a lot of things over time. Stakeholders must choose how to implement it and this conversation helps decide hot to do it.

A: How the device communicates doesn't matter. There is strong potential in power and use of utility efficiency.

(40 - Set A) REGIONAL UTILITIES WORK TOGETHER TO BRING ABOUT 2.2.2 SOONER THAN IT WOULD OTHERWISE TO GIVE THE REGIONAL A "SUSTAINABILITY ADVANTAGE (WP51; National)

Energy web may give the region more sustainability. Higher quality, more reliable power is an economic advantage to the region.

Question: What is meant by sustainability advantage? Answer: industrial process to clean them up, using bio-degradation of sewage sludge, it might be simply higher quality, lower cost will make it economically better for the region.

Question: Is it about fossil fuel exhaustion? Answer: Yes, it is that too. If we build less plants and have less CO and other SOX, NOX, etc. we will be better off.

(41 - Set A) GROWTH OF INTEREST IN "GREEN BUILDINGS (WP23; National)

Sam: Building owners in Manhattan are starting to secure the standard. They can save money on energy, retain employees etc. They can command an increased $1 per sq. ft on rent because people want to live there. There is a huge opportunity. It is not just commercial but also residential. There is huge saving that can be achieved. It has reached a critical mass.

(42 - Set A) GROWTH OF ALTERNATIVE POWER SOURCES AND DISTRIBUTED POWER GENERATION IDEAS (WP23; National) (*DELETE*)

I don't think this adds more to what has been covered. Delete.

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(43 - Set A) LOW POWER AND GAS PRICES WILL INCREASE DEMAND (WP23; National)

(44 - Set A) INCREASED RECYCLING (WP23; National)

My final comment, a motherhood thing without a lot of statistics to back it out (more intuitive). This presumes that when we are recycling we use less energy. Less energy, for example, to renovate a building other than building from scratch. Transportation of waste is a huge cost and an energy sink. There may be a lot more recycling going on in the future.

Question: Is it that recycling has positive energy consequences? Yes.

Comment: Known energy savings on aluminum can recycling.

(45 - Set A) INCREASING PRICES FOR ENERGY WILL CAUSE CONSUMERS TO USE IT MORE EFFICIENTLY (WP45; National)

Self explanatory. Goes with a number of comments made by others. Low prices on the region have been a barrier to increase energy efficiency usage.

Bill: In the Northwest we've had low rates for long time. As rates increase the level of interest in efficiency will increase.

(46 - Set A) CONTINUED CONCERN AND MORE DOCUMENTATION FROM THE SCIENTIFIC COMMUNITY WILL LEND CREDIBILITY TO GLOBAL WARMING AND LEAD TO MORE MITIGATION ACTIVITY (WP45; National)

The impetus for 46 is from a couple of things. In the recent past there hasn't been agreement on global warming. Now we have at least agreement that there is a problem. In Oregon we were able to sit down with several interested parties and designed a climate trust. Agreement by all parties concerned. There is evidence that there is a movement in the market due to global warming speculation.

Comment: There is no scientific documentation about global warming. But it is an important issue.

(47 - Set A) IMPROVEMENTS IN TECHNOLOGY AND INCREASED PRICES WILL LEAD TO MORE DISTRIBUTED GENERATION (WP45; National)

We are seeing more interest due to volatility in the market.

Q: What is the scale you are referring to?

A: From small to huge, e.g. server farms, all over the map.

(48 - Set A) THE NATIONAL DEPLOYMENT OF DISTRIBUTED ENERGY RESOURCES WILL INCREASE RAPIDLY (SEE 1.2.1) (WP21; National)

This will continue to grow given the energy crisis in the west. Enormous difficulty in sighting large scale energy generating plants. There are advantages for building smaller, closer to demand, generation, as opposed to building giant energy sources such as the dam being built in China. Distributed, smaller scale energy sources is clearly what is happening and will involve alternate energy production that are greener and more innovative.

Question: How distributed energy generators interact with efficiency? Answer: The initial energy efficiency will not be as great as a combined combustion turbine. But generally its efficiency is on the increase. The goal of the builders of this hardware is to increase this efficiency. Fuel cells are already more efficient than other generation products.

Question: What is this efficiency gain: Answer: From a system point of view it is easier to make it more efficient by having a number of smaller parts than a single large unit.

Comment: Less distribution losses means produce more goods for energy input. More reliable sources.

Comment: Dept. of energy has contract with energy generator suppliers with a goal on increasing efficiency. No one believes that we are as efficient with large energy suppliers.

Comment: On distributed generation the purchaser of the capacity takes the full risk. On large capacity, purchasers take the risk for the peak capacity.

(delete) = Decision was made to delete idea

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(49 - Set A) ENERGY EFFICIENCY MARKET TRANSFORMATIONS WILL TREND UPWARD MAINLY (WP21; National) (*DELETE*)
Cyrus: Wanted to change statement.

(50 - Set A) ECONOMIC GROWTH AND MARKET INVESTMENT PARTICIPATION WILL INCREASE (WP21; National) (*DELETE*)
Delete

(51 - Set A) GLOBAL WARMING WILL CONTINUE TO BE TREATED AS FACT DESPITE THE LACK OF HARD SCIENCE (WP21; National)
Tom: GW is an idea that is appealing because shorthand for problems of modern society pollution over pop, excesses,. It has struck a cord in imagination of the news media. Scientists are accepting level of certainty that has been established. This has some to be a mythology that is widely accepted and abused as something that precludes having to prove something else. Planatologist are not optimistic about it but doesn't meat it won become a factor. Don't like concept due to potential abuse

Q: Does treated mean to be used as to increase focus on local action?

A: People treat it as a fact and believe it is one.

(52 - Set A) ENERGY AND BROADBAND COMMUNICATIONS WILL BE SUBJECT TO INCREASING CONVERGENCE (WP21; National)
Essentially not different from what we've been told about control system of energy. One of the things that is obvious is that band with for communications has improved. We don't get the benefits on internet from home yet but eventually we will. The principle that control energy mechanisms and hardware will all be part of other systems, that may have other kinds of applications, but for our stand point here, energy, there will be a benefit in efficiency.

(53 - Set A) GLOBAL CLIMATE CHANGE (WP35; National)

(54 - Set A) INCREASED PENETRATION OF DIGITAL COMMUNICATIONS AND CONTROL TECHNOLOGIES FOR MANAGING ENERGY USE (WP35; National)

(55 - Set A) MASS CUSTOMIZATION (WP35; National)

(56 - Set A) SMART APPLIANCES AND BUILDINGS (WP46; National)
Began with the important trend with decentralization of energy consumption. For example, cell phones, walkman stereos etc. have increased energy efficiency. Smart appliances are important. Prices signals are sent indirectly to consumers. For example, commercial and irrigation users with large energy demands are affected by price changes more than small consumers. But as price signals affect consumers, demand for smart appliances or energy efficient appliances will influence consumers.

(57 - Set A) DEMATERIALIZATION OF PRODUCTS WILL SAVE MUCH ENERGY. WITH CUSTOMIZATION OF MATERIALS GREAT STRIDES CAN BE MADE IN DEMATERIALIZATION – WEIGHT REDUCATION, FIBERGLASS CABLE TO REPLACE COPPER CABLE, ETC. (WP7; National)
Harold: Dematerialization has potential. For example getting 150,000 miles on tires is possible. Another example is use of fiberglass cable to replace copper. Fiberglass requires only 5% of energy use by copper wire.

It is not inevitable. There are ways to use lighter materials but if you make a product that lasts 10 yrs. and replace it with a lighter product that lasts only 2 yrs. you are worse off. If done intelligently it has potential.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(58 - Set A) USE OF INFORMATION TECHNOLOGY (COMPUTERS EMBEDDED IN APPLIANCES, HOMES, FACILITIES) WILL BE USED TO REDUCE ENERGY USE AND INCREASE EFFICIENCY WP7; National) (*DELETE*)

Strike this because it is close to 20, 38 and 56. Delete.

(59 - Set A) NANOTECHNOLOGY AND MOLECULAR MANUFACTURING MAY BEGIN TO HAVE SOME IMPACT, ALTHOUGH THE STRONGEST IMPACT WILL OCCUR BEYOND FIFTEEN YEARS (WP7; National)

Define Nanotechnology. Extreme miniaturization. Lot of work in this area, like biotechnology. This refers to syntheses at the molecular level. Crating activity at this level, creating activity and products. It can create revolution in industrial energy savings can be enormous. Can do things more efficiently. Beyond 15 yrs. Of interest her but something to keep in mind.

C: this is important factor. If we were discussing the future and limitations this statement would be like the horse/buggy and car. In our program in the tech division we have many nanotechnology innovations that will be commercial in next 3-5 yrs we will see revolutionary approaches. We have a National lab that has energy partners that developed heat exchangers (a small one) that has 1000 micro. through put more than one that is 100 times larger in size. We are moving to intelligent materials and it will be soon. Will be more rapidly applied and we must move forward.

Q: Do you envision net impact as negative or creation of nano facilities where net may be zero? Eg micro technology requires intensive facility that makes it counter productive.

A: Will get new manufacturing concepts unlike current thinking. Eg. Interferon – could possibly do all manufacturing for world in one plant. Can't yet conceive effect but will be enormous.

C: Nanotechnology envolves catolitic processes and once it begins it creates it's own energy, we want to build efficient process.

C: This is a good example of LEEP project, displays cost/benefits.

(60 - Set A) ADDRESSING THE WIDELY PREVALENT "DISCOUNTING DILEMMA" CAN HAVE A MAJOR IMPACT ON ENERGY CONSERVATION. THIS REFERS TO DISCOUNTING DISTANT TIME AND SPACE AND FOCUSING ON THE "HERE AND NOW", I.E., TAKING THE SHORT-TERM VIEW (WP7; National)

Fundamental problem. Discounting of money. I apply that also for time and space. When dealing with problems with long term impact there may be bias in the short term. If you take the limits of growth, for example, global population against time. Computer runs shows a crisis and than growth drops. The way every body else looks at it, plotting the same information, applying a discount rate. If you apply this to the expenditures of solar energy vs. coal against time, the solar system will be very high initially as coal is low at the beginning. In total, the area under the curve says that solar is cheaper. If you discount, solar will be more expensive. How can you alleviate this? We tend to discount both in space and time. We are concerned with the here and now and our interest decreases as we go into the future.

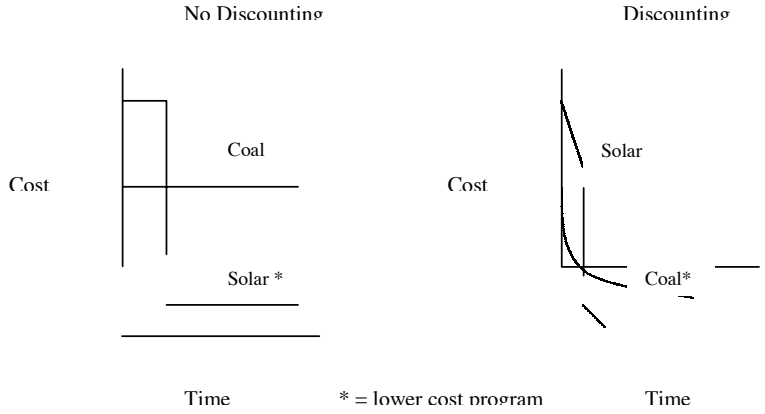
Question: What is the meaning of the discount dilemma? Answer: It is a dilemma for us. Restoring a polluted environment is not easily to perceive, the energy cost is basically seen by the consumer in their bill. Cleaning up the environment is much long term and more difficult to be assessed. The concern that we have is that it is difficult to get people's attention to longer range thinking.

Comment: We have this problem today. How do you see this trending in the future? Will people have more ethics, etc.? Answer: Think about something that we can do to alleviate the situation. [This discussion may be continued].

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

Example:



(61 - Set A) MANAGEMENT RETHINKING CAN IMPROVE ENERGY EFFICIENCY BY FORMING HIGH RELIABILITY ORGANIZATIONS AND BY RESTRUCTURING OPERATIONS WHEN INTRODUCING NEW TECHNOLOGY SUCH AS ROBOTS AND INFORMATION SYSTEMS (WP7; National)

Harold: When you introduce a robot onto a factory floor to replace a person, yet doesn't increase productivity that is energy efficient. Same was found when introducing computer in office operations. The finding is that you must rethink the entire process. You must rethink the way you proceed. When you deal with industrial problems/accidents you realize there is something that separates effective organizations from those who handle it as usual.

These organizations can switch from hierarchical to flat in an instance. They operate differently. Nuclear industry vs. Admiral Rickover and nuclear navy. Higher liability has proven to be highly effective. These are example of management rethinking.

(62 - Set A) PEAK DEMAND MANAGEMENT, INCREASED TRANSPARENCY OF ENERGY COST AND CONTROLLABILITY AT THE HOME LEVEL, ALONG WITH THE MANAGEMENT OF ENERGY AT THE PLANNED COMMUNITY LEVEL, WILL GREATLY REDUCE THE PACE OF INCREASE IN ENERGY DEMAND (WP26; National)

My use of the word "will" could be changed for "has the potential to". Number 5 is right when this technology will be available. But in 5 months not 5 years. We have the capability now for utilities to communicate with the consumer. The more significant achievement is related to peak consumption management to make appliances to use zero energy at the time of the peak power consumption. There are tremendous opportunities on this area.

Comment: Importance of consumers understanding price signals. This type of suggestions basically eliminate the need for the ultimate consumer to understand what's going on in their system They receive a preconditioned commodity. Provide a service so that they don't need to understand this. How can we change a behavior on the consumer this way? Answer: Low tech example: consumer can adjust appliances from their compute, it is an instant feedback on the cost of their decisions. High Tech example: during a period of peak demand the utility wants to reduce energy demand. A message from the utility will tell consumer that they would give them, for example, a financial incentive to reduce consumption at that peak time, it gets the consumer involved and provide feedback.

Comments: the majority of consumers do not want that type of involvement. They want plug and play appliances. Answer: if the consumer gets a blinking light to tell them that they could save money if they turn it off at a certain time and the only thing they need to do is to press one button, they would probably do it.

(delete) = Decision was made to delete idea

Comment: Perhaps there is a middle ground for this type of situation. The entity that sells or installs an appliance becomes the aggregator for the saving to help them set the energy consumption by providing the consumer with the energy efficiency options. Example 1: Find the aggregated and where the pain is. Efficient toilets or more efficient water system? Example 2: Use mortgage companies like Fannie Mae to explain mortgage reductions to consumers related to selection of appliances, housing materials etc.

Comment: In the world of deregulated utilities, the resulting increase of unknown prices of energy will make this transactions less clear, which is a down point on this.

(63 - Set A) PUBLIC DEBATE OVER USE OF TAX RELIEF FOR LOCAL COMMUNITY INFRASTRUCTURE VERSUS FOR INDIVIDUAL GAINS (WP5; National)

Tom: This is related to the debate over tax relief. We were considering if we got $$ back, how can we use them better than the federal government. They felt we know better how to use our funds. Is there a local infrastructure to help us decide? There is no federal planning opportunity and there is no commitment to develop one. This creates despair at grassroots level.

C: Example – If we were a community and we were looking at how to generate wind power and didn't know how to finance it, if the community pre-bought 10yrs of kilowatt hrs of energy, it would give you the ability to purchase wind turbans and install them. We could then circulate the $ in local community. You would now have a very involved local public aware of what's happening with local energy and empowered to solve problems at local level. It is important. Consumer should have options given and create them.

C: It is an important solution but collectively deciding which way to go at the local and national level. We need a model.

C: Another issue is that there needs to be an agreement between the service provider, utility and consumer.

(64 - Set A) INTERCORPORATE & GOVERNMENT COLLABORATION FOR NEW, SUSTAINABLE PRODUCT DESIGNS / REGIONAL, NATIONAL AND INTERNATIONAL SUSTAINABLE DESIGN COMPETITIONS (WP5; National)

In the environmental arena of start up companies, getting inter-corporal collaboration is very helpful. Expanding and helpful to their needs. Particularly in the area of environmental technologies, which may not be considered the best investment. How to bring more incentives to these issues? Being able to create and share awareness provides a good learning model to providing further inter-corporal collaboration.

Question: Can you add Governmental cooperation? Answer: Yes.

Question: Can you add regional collaboration? Answer: Yes.

Question: What is exactly meant by collaboration? Government involvement can be, for example, in pushing R&D for sustainable designs. The other aspect can be on pushing the application of those through financial incentives. If government presents opportunities for dialogue it may work as a collaboration.

Question: Can it be that removing the impediments for collaboration be considered as a government collaboration item? Answer: These things have to be dealt with.

(65 - Set A) TAX POLICY CHANGES THAT WILL MAKE STOCKHOLDERS RESPONSIBLE FOR CORPORATE ENVIRONMENTAL DAMAGE, EVEN AFTER A STOCKHOLDER HAS SOLD SUCH SHARES. STOCKHOLDERS MUST LEARN TO THINK LIKE INDIGENOUS PEOPLES (WP5; National)

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(66 - Set A) FEDERAL FUNDING FOR ENERGY RESEARCH IS LIKELY TO DECLINE, REDUCING TRUE PLATFORM INNOVATION AND FORESTALLING GAINS ON NEW SUSTAINABLE ENERGY TECHNOLOGIES (WP5; National)

Not being a sour technology developer here, speaking of a perception that federal funds will decline which will make it difficult to develop new technologies at start up companies. Same for university sectors, affecting the direction in which investors look for opportunities. Investment targeting where it is hot.

Comment: What do you mean by true platform? Answer: platform of technology, such as mechanical transduction of energy (?) etc.

Comment: Really good ideas were able to attract private funding and government left to fund marginal stuff. Answer: this may be after the fact analysis.

Comment: Federal funds are likely to decline, how confident you are on this? Answer: Need more standards for federal funding for academic funds. Criteria is not heavily weighted in the commercialization feasibility of research.

Comment: Sinfields (?) corporation. Bigger mistake has been technology push versus costumer pull. The most successful programs are the ones that turn to the costumers and they identify what needs to be done. In research, the statistics say that industrial research does not provide incentives for companies to go into platform risk competitive directions. Not to make a company more competitive, but a platform of pre-competitiveness.

(67 - Set A) BROAD ACCESS TO SELLING SURPLUS ENERGY BACK INTO THE GRID WILL OPEN UP SMALL AND MICRO POWER GENERATION ELECTRICAL ENERGY MARKET NICHES (WP5; National)

Tom: Desirable but not necessarily probable. Link the shareholders to foot print companies create including environmental reporting, or long term holding times for companies that have environmental impact. Creating incentives to create environmental technologies, etc.

C: Two possibilities to make stockholders consider these issues might be a green tax where pollution is taxed, or making company responsible.

C That represents a different category of solution but is in same spirit.

Q: Would this destroy concept of a corporation?

A: It might change it but not destroy it……this required some debate.

Give resident homeowners the opportunity to buy back into grid. Gives them opportunity to buy back into the equation. Commercial fishing vessel might invest in putting a fuel cell into a craft. When craft is not in use they can gain value from the fuel cell by pumping energy back into grid.

Q: This is what I was speaking to earlier. Whether distribution systems can handle the load. When you have many micro generation systems that can take their power and put it on the grid, can the distribution systems handle power coming on and off? It can present a technical hurdle.

(delete) = Decision was made to delete idea

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Additional National Trends

(128 - Set A) REDUCING THE GAP OF ENERGY CONSUMPTION PER CAPITA AMONG COUNTIRES WILL INCREASE THE NATIONAL NEED TO SAVE ENERGY IN WHATEVER WAY THERE IS

I find "sustainable development" as the most important context for handling any thought about energy matters in the whole world, and that "sustainability" (leaving our descendants a livable planet to develop themselves with no imposed restrictions) is my main interest and the reason to be here as a participant.

To attain sustainability in our planet, there are needed four principles:

- *Economic development;*
- *Social sustainability;*
- *Ecological integrity; and*
- *Fair play among nations in political, economic and international conflict matters that require international law and jurisprudence (in less words: no hidden agendas from any government or influential groups).*

What I mean with social sustainability was that it is imperative to create conditions in every country and among countries to facilitate people the satisfaction of at least their basic needs regarding nutrition, health, housing, public services, education and employment. Otherwise, we would be sorry whenever revolts, forced migrations, terrorism and wars appeared to tell us that the poor people head towards the same goods the rich people already enjoy. This requires from us all to be socially responsible (use energy but save energy, for example). Ecological integrity means for me not to harm our environment, unless we expect it to react against us in many different ways, including the elimination of different forms of life. Of course, economic development is also needed to achieve sustainability and it is strongly linked positively with social development whenever wealth is not only responsibly generated but also responsibly distributed. The responsible generation of wealth is positively linked with ecological integrity, but irrational economic activities would be negatively linked to it. The fair play among nations means no economic or political hegemony imposed by one or various rich countries through taking advantage of being ahead in scientific and technological knowledge, economics and armaments. The need to share information with others is embedded in fair play.

Ecological integrity and social sustainability are strongly linked in this perspective..

(129 - Set A) AIR REGULATIONS CONVERTED TO OUTPUT BASED LIMITS

Tom: This covers supply side efficiency. There is a strong move in EPA to issues regulations to power plants and giving credit to those who produce (specifically defined) power output. Those will benefit and we will see movement toward more efficient energy use.

(130 - Set A) THE ACTUALITY OF A LONG TERM ECONOMIC DOWNTURN WILL DETER BUSINESS INVESTMENTS AND CONSUMER EMBRACEMENT OF ENERGY EFFICIENT PRODUCTS

The actuality of a long term economic downturn will deter business investment and consumer embracement of energy efficient products

Obviously the stock markets have not been doing well and we may be going into a recession. If it lasts long, then we can make a distinction between energy efficiency and conservation. Companies may invest in energy conservancy. Consumers will buy products that are low cost and not energy efficient. Depression will be a boom to energy conservation, not energy efficiency.

Question: If economic slowdown mitigates temporarily energy consumption, will people begin to think that energy efficiency is synonymous to economic decline? Answer: It could go either way. I suppose it is a scenario that may take place.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(131 - Set A) CONTINNUED DECLINE OF NW COMMODITY AGRICULTURE AT THE SAME TIME GROWTH OF NICHE AT THE SAME TIME LOCAL SMALL SCALE FOOD PROCESSING AND MARKETING

Tom: Commodity prices are set globally and production cost are local. Agriculture in NW is not competing well. Consumer demand for organic product leads to more production on that scale. How this plays into energy is unclear. Refining of middle and upper middle class tastes. Demand is changing globally and in other ways.

Q: If commodization of food is driving down food prices there is more money in the consumer basket for other things. If more money is available is it likely to be spent on energy?

A: Yes, the middle class is spending more for food and others on low miles per gallon pick up trucks. This is costing more money.

(132 - Set A) WEALTH GROWTH THAT IS RELATIVELY SLOWER THAN THE GROWTH IN THE COST OF ENERGY RESOURCES

Wealth growth that is relatively slower than the growth in the cost of energy resources

Nothing will encourage energy efficiency more than poverty.

Comment: There has to be an understanding on the distinction between conservation and efficiency. Efficiency that may be expensive may not pay back. Conservation would go up under this scenario. Answer: Certainly it is true that the demand for conservation strategies rather than efficiency strategies will take place. I will embrace this comment.

Comment: On economic slow down, consumers will retain old, inefficient appliances rather than purchasing new efficient appliances.

(133 - Set A) RETAIL DEREGULATION AND POLLUTION REGULATIONS REDUCED TO POLLUTION TAXES WILL STIMULATE ELECTRIC ENERGY EFFICIENCY

If you have retail deregulation, incorporated all cost and those costs are pasted on, that would stimulate energy efficiency.

We want to insulate consumer from retail price changes and achieve pollution control none of which will stimulate energy efficiency but does stimulate….

Q: Do you mean truth in labeling

A: Prices must change, if you buy electricity from a polluting source you have to pay more.

Q: How would you achieve that?
A: There are processes that measure the impact of morbidity and mortality and emissions, if there were charges of those impacts associated with the cost…..

Q: One reason that electric prices in California are high is that California is required to have (knox?) credits and they went sky high. If you roll input cost to retail consumer then the impact is negative consumption.

Q: What's different about this concept? Resource economists have been urging this for 30 yrs what's different?

A: In the future we will see some of this .

(134 - Set A) PREDICTED WORLD PEAK IN OIL AND GAS PRODUCTION WORLDWIDE IN THE NEXT DECADE COMBINED WITH GLOBAL INCREASE IN ENERGY DEMAND WILL DRIVE ENERGY EFFICIENCY

A predicted world peak in oil and gas production world wide in the next decade combined with global increase in energy demand will drive energy efficiency.

This seems like bad "dejavue" prediction of the world falling apart. The world production will peak sometime in the next decade. The current demand for energy in the third world will peak in the next decade as well. So there will be a clash between increasing demand and the slow down on production.

(delete) = Decision was made to delete idea

Comment: Cyclic behavior has been independent of economics or shortage. Coal reached its peak in 1920 but not shortage. Oil in 1980 and no shortage. Now it is gas. Every 60 years or so there has been a peak. After gas, solar/fusion? Answer: There is a likely coming together between these two trends.

Comment: July 2000 Scientific America has a good article on this.

(135 - Set A) NORTH AMERICAN CLIMATE CHANGE WILL CREATE DEMAND FOR EFFICIENT SERVICES AND CHAOS FOR ENERGY SERVICE PROVIDERS

This may be pointing out the obvious. Even if we don't agree there are long term changes in climate that have come together this year to create havoc on the West Coast. Predictions of changes across the country may increase things like air conditioning use, hydro-electric power sources may not be as bountiful…. These things will add to demand

(136 - Set A) GOVERNMENT LOOKS TO INDUSTRY TO COLLABORATIVELY DESCRIBE THEIR SUSTAINABLE FUTURE RESPONDING TO NATIONAL & REGIONAL GOALS FOR ENERGY, ENVIRONMENT AND PRODUCTIVITY

Government looks to industry to collaboratively describe their sustainable future responding to national and regional goals for energy environment and productivity

There has been a lot of discussion about individual consumers and very little discussion about the industrial base on the northwest. If you don't have an industrial base, people won't have jobs. Service sector is not sustainable. 15 year trend needs the dialogue with people that know their business and help them design… The overall opportunity to increase efficiency has to do with process optimization.

Question: Are you saying that some of these industries do not have economic incentives to reduce their costs? Answer: When process go up, yes. But on the 15 year trend there needs to be a dialogue on sustainable growth. These incentives of today may not be here in the future.

Question: Is it about companies relocation? Answer: It depends on whether you want to keep them here and/or attract someone else. There has to be dialogue so that it occurs.

Question: What would you tell them? Answer: You have to think of it as a portfolio. What are the barriers for them to invest on energy efficiency? The portfolio of what the partnership has to be to sustain growth.

Question: Is it related to a way new companies build in and invest? Answer: It is both. Regional economies, which kind of industries should relocate to strengthen the vitality? Like a new old economy, on a 15 year plan.

(137 - Set A) "DEREGULATION" - SORTING OUT ISSUES OF WHO SHOULD DO WHAT WITH WHOSE MONEY

Syd: At the moment there is a diversity of answers to this. It would be nice if we came up with some solution to this early in the process to get us there sooner than later. Good to see the diverse representation here. California is coming up with $900 million for this processes. Where will that come from, who will direct it?

C: A lot of people are wondering were it will come from.

(138 - Set A) RESOLVING OR CONSOLIDATING PUBLIC POWER AND INVESTOR OWNED UTILITY SERVICE MODELS

Resolving or consolidating public power and investor on utility service models

In Washington DC, 50% of residents are served by investor only utilities. We have representation here. Different ways of approaching this business rather public utility.

Comments: What's this trend in 15 years? Answer: That is a question in everyone's mind. How is it going to play?

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(139 - Set A) POLITICAL AGENDA THAT ALTERNATIVELY LINK AND UNCOUPLE ENERGY STEWARDSHIP FROM OTHER SOCIAL STEWARDSHIP MISSIONS CONFUSE THE PUBLIC

Tom: Defining where energy efficiency fits with renewable energy, like health, quality of life, etc. It should become clear they are linked. One should recognize that energy efficiency is a holistic approach to planning for the future.

(140 - Set A) ONCE IN A WHILE A STORM WILL REEK HAVOIC AND WE FIND OURSELVES WITHOUT ELECTRICITY IF THIS HAPPENS, THESE TWO CANDLES ARE PROVIDED FOR YOUR CONVENIENCE REMEMBER THEY ARE HERE IF YOUR NEED THEM AND OUTAGES DON'T LAST TOO LONG, PLEASE LEAVE THE CANDLES FOR THE NEXT PERSON

Once in a while a storm will reek havoc and we find ourselves without electricity. If this happens, these two candles are provided for convenience, remember…

That there are things we can always define. That we must accept the ability to respond, react and leave something for the next person.

(141 - Set A) FREE MARKET ECONOMICS IS A CREED NOT NECESSARILY A TRUTH

It picks up content from Reynaldo regarding how the US could live more simply so that others can live better. If there were changes to be made they don't have to be made in a fundamental shift. A response to how energy is used in the future is for us to determine, it is not already pre-destined.

(142 - Set A) IN VIEW OF FUTURE UNCERTAINITIES PLAN FOR NEW ENERGY PRODUCTION SYSTEMS THAT RECQUIRE LESS LEAD TIME THAN TRADITIONAL LARGE-SCALE SYSTEMS AND THUS INCREASE FLEXIBILITY (THE LESSONS OF WPPS & SOUTHERN CA. EDISON CO. FORCAST HISTORY)

In view of future uncertainties, plan for new energy production systems that required less lead time than traditional large scale systems and thus increase flexibility (the lessons of WPPS & Southern Ca. Edison forecast history)

This ties with Chris' comments about the candles. All of you are familiar with Washington's energy supply, another example, the huge investment, the building that stopped in the middle. In CA, the example, planners analyzed their own forecasts of energy demand (every five years). The shocking result is that the forecasts, looking in hindsight, is that there was always something wrong with their assumption. As an example, after the oil crisis they expected the consumption to go back to earlier levels and in reality it did not occur that way. Smaller systems allow for better changes of course.

Comment: It may not be an argument for smaller units. In defense of the CA system, it was not their forecast only, but a world wide forecast that made such a mistake in assumption.

(143 - Set A) AS THE PUBLIC REDEFINES ELECTRICITY FROM A COMMODITY TO AN ENTITLEMENT CONSUMPTION WILL INCREASE

Ken: Looking at what trends are, one possible trend in next 15 yrs is backlash or to "Bushlash" to the use of energy as a commodity. Some being politically re-defined as entitlement not just for poor but as a social compact. I see a potential that there may be changes in trends, the trend may be to treat energy as an entitlement. This is nationally and internationally. International equity issues for the same amenities and entitlements we have will put pressure on the economy.

Q: You are drawing contrast between treating energy as commodity or not, don't see why you can't treat it as a commodity and entitlement.

A: Commodity is something created by market force. If we were short of bread we would regulate it. Something we create intervention for.

C: Commodity as something in which there is price differential.

Q: It is an interesting observation. On the international side, is it possible that countries in certain stages of develop who use energy based on a certain stage of development….

(delete) = Decision was made to delete idea

A: It correlates with the consumption of energy per capita. Like health care, etc.

Q: Haven't we had this effectively?

A: That is part of the past. Redefining electricity is no longer an obligation to service but a right to purchase in the marketplace if you can afford it. It changes the view of it.

(144 - Set A) FUEL OPTMIZATION WILL FOLLOW RECOGNITION OF ELECTRICITY AS A PREMIUM ENERGY SOURCE

Fuel optimization will follow recognition of electricity as a premium energy source

Fuel choice, fuel optimization. One of the possible trends as the prices increase overtime is that economic substitutability will become questionable. People will start to seriously think whether it will be feasible to use electric energy to irrigate etc. People will become more aware on the type of energy they will use.

(145 - Set A) ENERGY EFFICIENCY WILL BE MAINTAINED AS SPENDING IS VIEWED AS A PUBLIC BENEFIT CHARGE RATHER THAN A REGULATORY ASSET

Steve: Recognizes that one core step that has taken place in last ten yrs is that it can be funded as a tax. When you reach this you start down a slippery slope and this is going change energy efficiency for historic planning. It improves social benefits and other social and political goals. It provides support.

We have made steps in Oregon and California to require some to pay tax. This is possible to support energy efficiency.

C: There is a risk some states have in restructuring a public benefits charge and it doesn't always work.

A: It is a social benefit that is worth paying for.

Q: Where does money go?

A: Oregon has been clear about defining it, California is trying to decide. The Alliance is a choice for policy makers. It's not clear.

(146 - Set A) OVER AND ABOVE THE VARIOUS COMMENTS THAT WERE DISCUSSED WITH RESPECT TO THE TRIGGERING QUESTION THE MOST IMPORTANT EVENT THAT IS GATHERING FORCE AND WILL HAVE MAJOR IMPACT ON THE ENERGY PRODUCTION AND THE QUESTIONS THAT SURROUND IT WILL BE THE DOLLAR EURO CONFLICT THAT IS GAINING STRENGTH IN LITTLE SHORT OF THE HORIZON

Over and above the various comments that were discussed with respect to the triggering question the most important event that is gathering force and will have major impact on the energy production and the questions that surround it will be the dollar-euro conflict that is gaining strength a little short of the horizon

Question: What is the linkage between dollar/euro conflict and energy efficiency? Answer: I wrote this statement in order to be asked about it and I will answer it. Immediate progress on the energy production industry, I was amazed that we are supposed to be talking about the future of this industry, but the comments so far were not deep enough into the future. Important things: when one talks about the future it is important not to regionalize the problem for the simple reason that those regions are not hard walls. This follows something very interesting that hasn't been touched upon. Several slides back, a statement appeared on the screen which told us that we had left the developmental phase of information society and had entered the ethical phase. If that is true than there can be absolutely no difference between the ethics of Louisiana and that of Portland. It is an example of the dangers of cutting up the problem into impenetrable pieces. It is now completely upon us because the euro currency is beginning to operate, it will be strong, within two years it will be strong, and we for the moment it is in a conflict situation already. Namely they won't buy of all things our beef and bananas. And we will not relax the very tough but quite secret facilitation papers that we have to issue in order to create some kind of commerce between U.S. and Europe. Given this, number 1 question becomes: "is the information phase followed by a ethical phase?" My answer is no although you said yes. The boss used this authority, I cannot agree to the fact the problems that we have are interesting but they are interesting

about another subject, not about the future. We should, if possible, think about the future.

Question: More pragmatically speaking, is the euro the new currency for purchasing the oil and is it going to affect energy prices? Answer: My general sense of your trust, I spent lots of time in international events discussing these issues and it is very real. But the point that you make about energy prices and regulations being part of competition with other nations is very good. The other jurisdictions are quite cognoscente of their regional issues. Very valid observation.

Comment: There are other reasons that from the De Hague conference, the economic advantage of the Euro would probably trigger blockades on commerce between U.S. and Europe. Answer: More recent information is beginning to surface and has convinced me that the getting together of the Euro-using countries will become increasingly stronger and, in two years, as Great Britain joins the Euro, we will have a land mass that is considerably larger and richer than the U.S. and we are fighting it.

(147 - Set A) AGING BABY BOOMER POPULATION SHIFTS ENERGY USE TO HOME AND RECREATION

This comes out of the concern that there will be a crisis in 10-15 yrs and impact on social security system because of the bubble of Baby Boomers retiring. They will be wealthier than previous retiring cohorts. This may have an impact on the way this population uses energy and the way that they buy amenities. If they are a large group and wealthier, they won't care about day to day shift in energy prices because they want amenities they anticipated.

(148 - Set A) DEVELOPMENT OF NEW ELECTRICITY USING NEW CONSUMER TECHNOLOGIES WHEN SOLD AS LIFESTYLE ENHANCEMENT WILL CONTINUE INCREASE IN PER CAPITA USE IN

Development of new electricity using new consumer technology when sold as lifestyle enhancement will continue increase in per capita use

Continues a trend that has been going on for a while and I don't see a decrease in it. Per capita usage is increasing and whether it is because of the design of houses with more rooms and more electric outlets on them or more technologies that are lifestyle enhancing, I don't see how we can change this trend without some kind of regulation.

Questions: Are you saying that if we increase urban core centers, but with houses with home theaters with 100w equipment, that we are not gaining anything? Answer: Yes.

(149 - Set A) TRADITIONAL MANUFACTURING INCREASINGLY MOVES OFF SHORE RESULTING IN REGIONAL ENERGY SURPLUSSES

With increasing globalization decision will being made elsewhere regarding where industries are sited, if industries move over seas we will get conflicting signal on using energy more efficiency because some industries will be having an energy surplus.

(150 - Set A) INCREASING USE OF INTERNET FOR E-COMMERCERS RESULTS IN CHANGING PATTERN OF RESIDENTIAL, COMMERICAL AND TRANSPORTATION DEVELOPMENT PATTERNS

Increasing use of internet for e-commerce results in changing pattern of residential commercial and transportation development patterns

I don't see the internet usage decrease. It will be used in several areas, which may change patterns in home residence and transportation patterns. We may need more airports and regional warehouses which may increase energy efficiency. Don't know if it is a positive or negative trend.

(151 - Set A) TECHNOLOGIAL IMPROVEMENTS IN EFFICIENCY WILL CONTINUE TO BUY IMPROVEMENTS IN AMENITY MAKING IT DIFFICULT TO ACHIEVE IN ABSOLUTE REDUCTION IN ENERGY CONSUMPTION

The first point is exemplified by a laptop or car. Both do more than they did ten yrs ago and they have energy efficient features but are using more energy. The Alliance must come to grips with this and address this sometime in future.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(152 - Set A) DEMOGRAPHIC TRENDS WILL CONTINUE TO PUT UPWARD PRESSURE ON HOUSEHOLD ENERGY CONSUMPTION THESE INCLUDE RISING INCOME, SHRINKING HOUSEHOLD SIZE, BIGGER HOUSES AND AN AGING POPULATION

Demographic trends will continue to put upward pressure on household energy consumption this includes energy .. bigger houses and energy…

Related to Ben's point. Statistics show that we live in about 4 times the square footage of the living places of our grandparents. That in total also drives consumption. We have to anticipate those things. Also, aging population, the older you get the more light you need. Larger houses need more lights, etc.

(153 - Set A) REGIONAL POWER SHORTAGES AND PRICE SPIKES WILL RAISE IMMEDIATE INTERESTS IN ENERGY EFFICIENCY, BUT CONFOUND PROGRESS TOWARD LONGER MARKET TRANSFORMATION OBJECTIVES

This has happened in California and the Northwest has seen this. Market transformation programs are moving. An interruption has been caused by emergency energy crisis. We tell the consumer that these amenities may cost more but are worth more, they provide additional service. There's a desire by utilities to discount these items now. In few years we will be transforming the market again. We need to flag this before we again try to transform markets.

(154 - Set A) INFORMATION OVERLOAD

As we move forward in time, the trend is exponential growth in messages, solicitations from decision makers, politicians. The implication is that when we will try to influence their behavior, it becomes more difficult considering this increase of information overload.

(155 - Set A) THE GROWING COMMITMENT TO A "COMMUNITY OF PLACE" WILL LEAD TO CONSUMER INTEREST IN SUPPORTING LOCAL BUSINESSES PRODUCING IN A MANNER THAT IS ECOLOGICALLY RESPONSIBLE, SOCIALLY CONSCIOUSE AND REFLECTIVE OF THE LOCAL CULTURE

Susan: Remember the book by Kirt Vonnegut About the merger of corporations into one big corporation. The head is a woman who lives as a bag lady in Grand Central Station. She is fearful that as President she will be found out so she lives incognito. In response to the increasing globalization there is increasing creativity at the local level. People are reconnecting to their place. I want to encourage working with this creativity rather that TV advertisement encouraging creativity. Work with local people who are tapped into the spirit of their place.

(156 - Set A) "GINGER"

I don't know much about ginger, but I suspect that other people here knows about it better than I do. If it turns out that ginger is this hydrogen power scooter, then this is a product that can change the energy world tremendously. What I do know is that if it is in fact a hydrogen power scooter, we could change inner city's usage of automobiles, the pollution level, and then it will also be an impact on health insurance. This concept may not be ignored. This could be as big an invention as Thomas Edison's electricity or the invention of cold fusion.

(157 - Set A) CORPORATE INVESTMENT IN SUSTAINABLE DEVELOPMENT DESIGN OPERATION, TECHNOLOGIES AND PRACTICES BECOME MAJOR FACTOR IN COMPREHENSIVE BUSINESS STRATEGIES

It speaks to making good business sense. Companies opening new stores at rapid pace, looking at labor sources, land, and energy. One thing synonymous with the ability to grow is energy use. More business will invest not because it is the right thing to do but because it makes good business sense.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

Regional Trends

Triggering Question:

"What PNW trends / events would you consider as having the greatest impact on the adoption of electric energy efficiency, over the next five to ten years?"

(68 - Set A) ARE THE CITIZENS OF THE NW WILLING TO CONSIDER "TOTAL COST" PRINCIPLES AS PART OF THE ENERGY EFFICIENCY EQUATION VS HAVING BUSINESS PAY THE BILL (WP11; Regional)

(69 - Set A) STATE REGULATORY AND LEGISLATIVE INCENTIVES WILL ADVANCE ENERGY EFFICIENCY IN THE REGION (WP30; Regional)

A: Historically energy efficiency managed by utilities has fluctuated. In more recent years imposition of alternative funding mechanisms, e.g. state legislated increases or tariff. These types of funding mechanisms will continue to grow.

(70 - Set A) INCREASED PENETRATION OF ENERGY EFFICIENT MESSAGES TO IMPACT CONSUMERS' DAY-TO-DAY LIVES AND MAKE CHANGES IN BEHAVIOR (WP32; Regional)

Looking at the Energy Star and brand awareness on efficiency issues, there is 30 % recognition of what the label means. It is about increasing penetration of the message and its results.

Comment: The change in behavior part of this is still more of a goal than a realized one. Energy Star linked with many of the other type of incentives have more of an impact on behavior, so far, than the environmental message. Answer: This comment *isn't only related to environmental issues. First part is about is energy saving, the second part is about environmental issues. Primary thing is cost savings on this statement.*

(71 - Set A) INCREASED CONCERN ABOUT THE ENVIRONMENTAL IMPACTS OF ELECTRICITY CONSUMPTION AND ACTION TO MITIGATE THAT (WP32; Regional) (*DELETE*)

(72 - Set A) RECOGNIZING THAT SOCIAL PERSPECTIVES ON DEMAND OFFER A MORE ACCURATE CONCEPTION OF ENERGY USE, POLICY ANALYSIS IS ABLE TO EXPLORE A LARGER NUMBER OF CAUSAL ACCOUNTS AND ENTERTAIN A WIDER RANGE OF INTERVENTIONS (WP42; Regional)

First part of the statement refers to how society and costumers relate to energy consumption. They don't know how much they spend in terms of energy. They think about amenities such as ability to have a cold beer. It is related to addressing costumer needs. But the consumers are becoming more awareness of the impact of their amenities on the environment. This is about producing an ethical appeal to increase this awareness. We can possibly change some of the appeals. Moving more towards the ethical appeal about people doing something better towards the environment. What kind of metric to measure that?

Comment: Not certain what social perspectives mean. Does it mean luxury items as opposed to awareness? Concern that we are making an assumption that consumers are not "intelligent". Answer: Social perspectives, is that consumers don't really view energy consumption as consuming electrons, but in terms of the amenities they are afforded. We are trying to address consumption reduction, we have to address social perspective.

(73 - Set A) LIFESTYLE ENGINEERING" BY BUSINESSES, SUPPORTED BY GOVERNMENT ACTION (E.G., THROUGH SUBSIDIES FOR CONSUMPTION OF NEW HOUSING, HIGHWAYS, FOSSIL FUELS ETC.) INCREASES ADVERSE ENVIRONMENTAL IMPACTS (WP42; Regional)

A: Lifestyle engineering means that people create demand for larger energy. Also a lobby for government subsidies. There will be increased adverse environmental impacts as a result.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(74 - Set A) SAVING TIME TO COMPLETE ACTIVITIES LIKE CLOTHES WASHING, DRIVES THE USE OF EVER MORE EFFICIENT MECHANICAL SUBSTITUTIONS FOR MANUAL WORK (WP42; Regional)

As consumers can appreciate time saving aspects and other values of products that are bundled with efficiency, they will go for them. Bundle this efficiencies with energy saving strategies.

(75 - Set A) IN HER BOOK "CITIES AND THE WEALTH OF NATIONS" JANE JACOBS BUILDS A STRONG CASE‹ECONOMICALLY, SOCIALLY, AND ECOLOGICALLY‹FOR A SYSTEM OF STRONG REGIONAL ECONOMIES, PRODUCING LOCALLY FOR LOCAL CONSUMPTION. THIS VISION, IF ENCOURAGED, COULD EFFECT SIGNIFICANT CHANGE IN ENERGY CONSUMPTION (WP25; Regional)

(76 - Set A) WHAT ARE THE ECONOMIC TOOLS FOR ENCOURAGING STRONG REGIONAL ECONOMIES -- LOCAL CONTROL OF ACCESS TO LAND ON AN AFFORDABLE BASIS, LOCAL GENERATION OF CREDIT, LOCAL MARKETS. WHAT WOULD ENCOURAGE DEVELOPMENT OF THESE TOOLS -- WHAT IS OBSTRUCTING THEM (WP25; Regional)

(77 - Set A) DEVELOPMENT OF A NEW CONSUMER ETHIC THAT MAKES CONSUMERS RESPONSIBLE FOR SHAPING THEIR OWN REGIONAL ECONOMY THROUGH ORGANIZED DEMAND FOR LOCALLY PRODUCED GOODS THAT MEET ENVIRONMENTAL AND SOCIAL CRITERIA. COMMUNITY SUPPORTED AGRICULTURE FOR INSTANCE (WP25; Regional)

Susan : Schumacker Society has taken information around Northwest and is interested in taking responsibility for local economy. The billing program has translated into an Oregon program. Strong ethical responsibility can tap into people being responsible for the consequences of what can happen in the region.

Q: Do you think that being from Seattle you would allow airplanes and software to be incorporated in products.

R: Schumocker would say the opposite.

(78 - Set A) CULTIVATION THROUGH EDUCATION OF CONCERN TO KNOW THE "STORIES" OF THE ITEMS WE USE IN OUR DAILY LIFE--WHERE WERE THEY MADE, UNDER WHAT CONDITIONS, USING WHAT RESOURCES. THE MORE OF THESE STORIES WE KNOW THE HIGHER THE POTENTIAL FOR A "RAISED" STANDARD OF LIVING--QUALITY, NOT QUANTITY (WP25; Regional)

(79 - Set A) A RE-EMPHASIS OF PLACE-BASED EDUCATION--DEVELOPING KNOWLEDGE AND APPRECIATION OF THE PEOPLE, LAND, AND COMMUNITY OF A PARTICULAR REGION LEADS TO APPRECIATION OF UNIQUE PRODUCTS CREATED IN THAT REGION--LOCAL CONSUMPTION FROM LOCAL RESOURCES USING LESS ENERGY (WP25; Regional)

(80 - Set A) SMALL TOWNS DEPRESSED BY DOWNTURNS IN TIMBER AND AGRICULTURE ARE REVIVED BECAUSE OF THEIR ATTRACTIVENESS AS HUMAN COMMUNITIES. THIS TREND IS ENABLED BY PUBLIC INVESTMENT IN HIGH TECH INFRASTRUCTURE NEEDED TO ATTRACT INFORMATION BASED TECHNOLOGY COMPANIES (WP39; Regional) (*DELETE*)

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(81 - Set A) THE PACIFIC NORTHWEST BECOMES DEVELOPS AND BUILDS HIGH SPEED RAIL FROM VANCOUVER BC TO MEDFORD WITH INTEGRATED LOCAL CONNECTIONS TO MASS TRANSIT, THUS REDUCING ENERGY USE SIGNIFICANTLY (WP39; Regional) (*DELETE*)

(82 - Set A) PRICE SIGNALS THAT REFLECT THE REAL COST ELECTRICITY (ENERGY) WILL DRIVE CONSUMERS TO DEMAND ENERGY EFFICIENCY IN ALL ASPECTS OF THEIR DOMESTIC AND BUSINESS DECISIONS (WP27; Regional)

Price signals are going to make the difference in terms of getting the energy consumption affected.

Comment: Still back to the differences between energy efficiency and energy conservation. Energy efficiency has to be affordable as well, otherwise it will only result in conservation.

(83 - Set A) INCREASING EXPOSURE OF CONSUMERS TO TIME SPECIFIC ENERGY VALUES AND THE MEANS TO RESPOND IN FINANCIAL, BEHAVIORAL, AND TECHNICAL WAYS (WP40; Regional)

A: The focus is on relying on price signals, also the second part says we need to develop other components of the market for people to respond to prices they see. Working with mitigated risk of price cycles, etc are examples.

(84 - Set A) CONSUMERS INCREASINGLY WILLING TO PAY MORE FOR ENERGY-EFFICIENCY ABOVE CODE MANDATES (WP48; Regional)

It would be desirable to have energy efficiency, but not mandated. It is about any source of energy efficiency. It is broad, energy efficiency across the broad, but talking about electricity.

Comment: Does it consider the effects of labeling to increase willingness to pay for efficiencies? Answer: Mechanisms of doing that are not important.

(85 - Set A) ENERGY EFFICIENCY BECOMES AN INTEGRAL PART OF HOME BUILDING STRATEGIES (WP48; Regional)

A: At the time of the exercise I anticipated this as a regional trend to influence development of energy efficiency. Let the builders be drivers instead of consumers.

(86 - Set A) STRONG EMPHASIS ON ENVIRONMENTAL ISSUES, EQUITY AND SOCIAL INCLUSION (WP48; Regional) (*DELETE*)

(87 - Set A) RECOGNITION THAT DEVICE-CENTERED APPROACHES ARE LIMITED IN THEIR ABILITY TO REPRESENT THE REAL-WORLD CONDITIONS OF ENERGY CONSUMPTION (WP48; Regional) (*DELETE*)

(88 - Set A) SIGNIFICANCE OF THE ENDANGERED SPECIES ACT DESIGNATIONS FOR FISH AND WILDLIFE FOR THE ENERGY SYSTEM (WP34; Regional)

It is a background factor. How it plays out is open for discussion.

(89 - Set A) RAPIDLY RISING ENERGY PRICES (WP34; Regional) (*DELETE*)

(90 - Set A) THE INTEGRITY OF THE BONNEVILLE POWER ADMINISTRATION, THE FOUNDATION FOR ENERGY AND ECONOMIC STABILITY IN THE REGION, IS AT RISK (WP34; Regional)

Base generating resource, under recurring threat. Something that we take for granted now and may or not be able to take for granted in the future.

Comment: Can we state that in a different way? Answer: That's fine. It is the basis for sustainability, integrity and stability in the region.

Comment: It is a change issue.

Comment: The word electricity has to be there.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(91 - Set A) GAINS IN STRENGTH OF GRASSROOTS MOVEMENTS AND ENVIRONMENTAL AND "LIVABILITY" NGOS (WP34; Regional)
Lauren: the observation here is on environmental groups, organization is the key term. While there are pros and cons, pro-environmental efficiency sentiment can be acted upon. This is a long term trend.

(92 - Set A) INCREASE IN THE SIZE AND IMPORTANCE OF THE GREEN BUSINESS COMMUNITY (WP34; Regional)
There are businesses that are making money selling green products. This is really a small activity. Buying efficiency in residential sector, in particular, it may be a real challenge in terms of technical infrastructure. Business that do it are not the small type of business.
Comments: What is "size"? Answer: Could be anything. Critical mass such as visibility, green supply chains.
Comments: In CA, the timeline that will take new production to come on line: a behavioral change, recognizing dollar cost.

(93 - Set A) CONSERVATION ETHIC AND CONSTRAINED SUPPLY SUPPORT SMALL COMFORT CONCESSIONS (A FEW DEGREES SHIFT ON THE THERMOSTAT AND REDUCED SETTINGS DURING UNOCCUPIED HOURS) IN ADDITION TO WIN-WIN TECHNOLOGICAL ADVANCES SUCH AS INDIVIDUALLY CONTROLLED DIMMING FOR LIGHTS (WP18; Regional)
Steve: This is in reaction to background material. There's a trend to have things available to people at all times. Are people willing to make concessions, e.g. turn the heat down on weekends, etc. Need to continue to look for solutions that are win-win with Energy savings, and people feeling better about space.

(94 - Set A) GROWING INTEREST IN THE BUILDING OF MORE ENERGY EFFICIENT COMMERCIAL BUILDINGS, IE: LEED CERTIFICATION, G-RATED PORTLAND PROGRAM, EARTH SMART, ENERGY STAR ETC. (WP24; Regional)
Insert "commercial buildings" word on this statement. I see a lot more change on these matters in the commercial building field than residential.

(95 - Set A) GROWING INTEREST DUE TO RISING DEMAND IN ENERGY EFFICIENT NEW HOMES AND RETROFIT OF EXISTING, TIGHTER HOUSES, MORE INSULATION, HEALTHIER, LESS TOXIC MATERIALS, ENERGY EFFICIENT (WP24; Regional) (*DELETE*)

(96 - Set A) GROWTH OF "SIMPLICITY" MOVEMENT, NATURAL STEP IN BUSINESS AND GOVERNMENT. MORE AND MORE ORGANIZATIONS WHOSE GOAL IS TO PROMOTE A SUSTAINABLE ENVIRONMENT AND SOCIETY (WP24; Regional)
I wanted to make the point that organizations on sustainability are becoming ubiquitous.

(97 - Set A) THE GROWING INTEREST IN "GREEN" AND OR "POLLUTION" TAXES AS A TAX SHIFT AND HOW THESE CONCEPTS MIGHT HAVE A ROLE IN ENERGY CONSERVATION (WP24; Regional)
Tom: Wouldn't want to go through this discussion without having green taxes discussed. Want to make sure that concept is out there.
Q: Are you willing to modify the language to include tax shift?
Statement was modified.
C: There are opportunities to use tax system as an incentive to make products greener and for consumers to be efficient.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(98 - Set A) THE IDEA OF "BRANDING" THE NORTHWEST AS A REGION WHERE "GREEN" PRODUCTS AND PRACTICES ARE PART OF OUR CULTURE AND ECONOMIC FABRIC (WP24; Regional)

Part of our economic reputation is related to the northwest as a nice place to live.

Comment: Build a sense of pride in the northwest.

(99 - Set A) LOW ENERGY COSTS WILL CONTINUE TO DAMPEN INCENTIVES FOR ENERGY EFFICIENCY (WP41; Regional)

Doug: Drop artificially. Point is that energy is historically lower here. Partly due to low energy cost there no conservation of energy and I see this continuing in the future.

Q: Not sure this is true. There has been energy efficiency. Incentives from PG&E etc to do some. My organization has spent millions to be energy efficient

C: Businesses will make decisions based on cost effectiveness and energy efficiency. If energy prices are low, fewer programs will make cuts.

C: If high energy prices are the case there will be a reaction to that

Q: I have question about what you are proposing.

A: No one in the Midwest is getting low prices 6-7% range. They are higher than what people perceived them to be.

(100 - Set A) IF ENERGY RELIABILITY IS HIGHER THAN IN NEIGHBORING AREAS THERE WILL BE AN INCENTIVE FOR ENERGY INTENSIVE INDUSTRIES, SUCH AS HIGH TECHNOLOGY TO LOCATE IN THE REGION (WP41; Regional)

At least for industrial plants, energy costs will increase although energy prices in the northwest will not be as high as in California, for example. It will serve also not only for energy costs, but also reliability.

Comments: Other types of industries? Answer: I tend to see more high tech industries, but others may also benefit.

Comment: California is deregulated and now we are moving towards that direction. Buying KW in this new market, and market spots being the same, there will be leveling of prices in the north-to-south range, and this would eliminate this incentive. Answer: I agree that "if we have deregulation across the entire region" that prices will level to about the marginal cost across the entire area. But I don't believe this is going to happen anytime soon.

Comment: Reliability may be the main issue for high tech industries, the ones that would be more interested in relocating here. Answer: I agree, that reliability may be the main important aspect for the region. Change the statement to include "increase reliability" other than "lower price".

(101 - Set A) AS A COUNTER-TREND TO 3.2.2., THE PERCEIVED NW LIFESTYLE WILL CONTINUE TO ATTRACT RESIDENTS WHO ARE PARTICULARLY ATTUNED TO THE CONSERVATION / ENVIRONMENTAL ETHIC, AND WHO WILL THEREFORE BE MORE INCLINED TO ENGAGE IN ENERGY EFFICIENT PRACTICES (WP41; Regional)

Doug: Outside the Northwest there's the perception that those who live here are more attuned to a responsible approach. If this is true it may be easier to influence, encourage and achieve environmentally efficient practices.

(102 - Set A) CO-HOUSING, SMART HOMES/APPLIANCES, IMPROVED MASS TRANSIT (WP51; Regional) (*DELETE*)

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(103 - Set A) INSTALLATION OF HARDWARE SOLUTIONS WILL BE MORE EFFECTIVE THAN BEHAVIORAL ORIENTED PROGRAMS - I.E. INSTALLING A CFL WILL BE MUCH MORE EFFECTIVE IN THE LONG TERM THAN REMINDING PEOPLE TO TURN OFF THEIR LIGHTS TO REDUCE CONSUMPTION (WP51; Regional)

Mike: Due to rising cost people will do things such as installation of hardware for energy management. Smart meters, etc are more effective than soft programs oriented to media or people.

C: Do you mean that hardware is more effective than behavioral changes?

A: Yes

C: I suggest you add behavioral to the statement.

Q: What do you mean by effective?

A: My issue is that there will be more energy saved in the lifetime of a situation.

(104 - Set A) RISE OF ELECTRICITY COSTS WILL DRIVE ECONOMIC DISLOCATION AND INCREASE THE NEED TO TAKE INFORMATION INFRASTRUCTURE TO RURAL AREAS, SO THAT EDUCATION AND ECONOMIC DEVELOPMENT CAN OFFSET DISLOCATION CAUSED BY FORCES OUTSIDE THE REGION (WP51; Regional)

There already has been economic dislocation in our region and it will continue to occur more intensively because of higher prices. Then there will be a need to transfer information to rural areas to off-set dislocation from issues from outside the region, such as cheaper apples from China or other issues related to manufacturing costs.

(105 - Set A) COMMUNITY AND PRICE PRESSURE ON MANUFACTURERS WILL PROMOTE CLEAN MANUFACTURING AND INCREASED ENERGY EFFICIENCY (WP23; Regional)

A: We have a lot of high tech companies here and we have not talked a lot about manufacturers.

C: I'd like to modify the statement.

C: Even at the low power rates for my company it's still a $30,000 bill. There are powerful incentives to take those costs down to $28,000 or to keep it below $32,000.

(106 - Set A) RESIDENTIAL AND COMMERCIAL POWER USERS GIVEN ACCESS TO DEMAND/ENERGY USE INFORMATION AND ABILITY TO CONTROL (WP23; Regional) (*DELETE*)

(107 - Set A) TAX OR OTHER INCENTIVES TO CONSERVE POWER (WP23; Regional) (*DELETE*)

(108 - Set A) =MAJOR POWER-USING INDUSTRIES REDUCE DEMAND, DEVELOP ALTERNATIVE, DISTRIBUTED AND NON-POLLUTING POWER SOURCES (WP23; Regional) (*DELETE*)

(109 - Set A) ACCOMPLISHING ENERGY EFFICIENCY IN THE PUBLIC SECTOR HAS CONTINUED TO BE A PARTICULARLY DIFFICULT TASK AND STILL IMPORTANT FOR THE FUTURE (WP45; Regional)

Bill: Getting more energy efficiency is very difficult. Public sector use is not that large regarding energy consumption. We here are in a position to lead by example and educate kids can get long term changes.

C: What you have there and what you said is different. You said that it is difficult but still important to pursue

A: My experience is that the public sector does adopt high energy buildings. Portland and some school districts are passing bonds and some schools are adopting better energy codes. I don't see link between the two.

A: What you mentioned is in Portland. I don't think it's true for state or government. My point of view is holistic. If you look a whole state and public sector it is hard work.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(110 - Set A) DEREGULATION UNCERTAINITIES ARE MAKING IT MORE COMPLICATED TO ACCOMPLISH ENERGY EFFICIENCY (WP45; Regional)

The uncertainties, such as the CA situation, brought the uneven implementation of deregulation in the area, the Oregon current prospects of delay on implementing deregulation. This uncertainty in CA is causing people to delay, and move forward in the energy efficiencies issues.

(111 - Set A) UNTIL THE NORTHWEST ACTUALLY EXPERIENCES A BLACK OUT IT WILL CONTINUE TO BE DIFFICULT TO GET PEOPLE'S FULL ATTENTION ON CONSERVATION ISSUES (WP45; Regional)

Bill: The idea is that people think there is no energy crisis or that we have an crisis because we send energy to California.

Q: Is that being offered as a future policy or what is your message?

A; No, we have work to do with public to get buy-in. people don't believe this is an issue in the region. A black-out gets people's attention.

C: will author be willing to modify statement?

A: Concept is people don't get it.

Another way to view it is a way to bring a remote event closer. Creating an artificial crises is a way to get attention.

(112 - Set A) THERE WILL BE AN ACCELERATING TREND TOWARD INCREASING DEPLOYMENT OF DISTRIBUTED RESOURCES (WP21; Regional)

Self explanatory.

Comment: I assume you are talking about environmentally preferable and non preferable generation? Answer: Yes, but preferably with greater environmental benefits whenever possible.

(113 - Set A) ENVIRONMENTAL PRESERVATIONIST SENTIMENTS WILL LEVEL OFF AND BE REPLACED BY CONSERVATION SENTIMENTS (WP21; Regional)

The US Forest service decided that the national forests should return to pre-settlement conditions. I see this being modified for a more sensible conservationist point of view.

C: Is that restoration sentiment or conservation sentiment? Do you see a distinction.?

A: Restoration is not in this observation.

Brian: I need to know the distinction.

A: Preservation tends to prevent access to the assets in question for all use. Restoration allows for prudent use.

(114 - Set A) ENDANGERED SPECIES RECOVERY MEASURES WILL INCREASINGLY EMPHASIZE COOPERATION RATHER CONFRONTATION (WP21; Regional)

It is imminent over the next 5 – 10 years.

Comment: What are the implications of that over energy efficiency? Answer: Nothing jumps up on my radar screen, I just don't know.

(115 - Set A) POPULATION DENSITIES WILL INCREASE IN REGIONAL URBAN AREAS WITH POSITIVE RESULTS (WP21; Regional)

Cyrus: Less urban sprawl.

C: Another example is Oregon's urban growth boundaries. People come her from all over the world to see how it is done properly..

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(116 - Set A) THE REGION WILL BE A LEADER IN THE ENERGY AND BROADBAND COMMUNICATIONS (WP21; Regional)
This is an observation that this region can lead in the conservation vs. broadband communication. We have enormous broadband communications.
Comments: Similar to item 98?
Comments: I see a difference. Landing itself towards the region, when areas outside the region may be competing with this region.

(117 - Set A) IT SEEMS AS THOUGH THE FUNDAMENTAL QUESTION HERE IS WHICH DOMINATES, TECHNOLOGY DRIVEN CHANGE OR SOCIAL CHANGE, CHANGE IN VALUES, ETC. I THINK THE LATER IS A BLACK HOLE. WE HAVE TO RECOGNIZE IT AND ADAPT STRATEGIES TO IT BUT CAN'T SHAPE IT. ADAPTING ADVANCES IN TECHNOLOGY TO EVOLVING SOCIAL STRUCTURES AND VALUES IS WHERE THE FOCUS SHOULD BE (WP35; Regional)

(118 - Set A) A GREATER NEED FOR APPLIANCES WITH BUILT-IN ENERGY EFFICIENCIES THAT ARE TRANSPARENT TO CONSUMERS (WP46; Regional)
Driven by higher prices in the future. The desire by the consumers to reduce energy costs. Lack of time and information to deal with this will required this type of appliances.

(119 - Set A) INTRODUCING FUTURE THINKING IN SCHOOLS, WORKING WITH SCENARIOS, SIMCITY, AND OTHER GAMES THAT FOCUS ON THE FUTURE ENVIRONMENT OPTIONS (FOR EXAMPLE, PUBLIC VS. PRIVATE TRANSPORTATION WP7; Regional) (*DELETE*)

(120 - Set A) INTRODUCING CROSS-IMPACT ANALYSIS IN SCHOOLS TO SHOW HOW DIFFERENT TRENDS INTERACT IN COMPLEX ADAPTIVE SYSTEMS. STUDY "UNINTENDED CONSEQUENCES" OF ENERGY ACTIONS (WP7; Regional) (*DELETE*)

(121 - Set A) DEVELOP TV AND SCHOOL PROGRAMS THAT EXAMINE INNOVATIVE URBAN ENVIRONMENTS (WP7; Regional) (*DELETE*)

(122 - Set A) UTILIZE MEANS TO COUNTER THE "DISCOUNTING DILEMMA", USING TELECOMMUNICATIONS (SUCH AS PRECURSOR TRENDS ELSEWHERE) THAT CAN SUGGEST FUTURE ENERGY PROBLEMS AND SOLUTIONS FOR THE NORTHWEST (WP7; Regional) (*DELETE*)

(123 - Set A) INITIATE THE RETHINKING OF LOCAL/REGIONAL GOVERNANCE TO MATCH THE TECHNOLOGY OF THE 21ST CENTURY, THUS PROVIDING A STEP IN IMPROVING ENERGY MANAGEMENT. (MUCH OF OUR CURRENT GOVERNANCE IS BASED ON 19TH CENTURY TECHNOLOGY (WP7; Regional) (*DELETE*)

(124 - Set A) INEXORABLY INCREASING CONNECTION BETWEEN ENERGY AND WATER, WITH BIGGEST PRODUCT TRANSFORMATIONS IN NEAR TERM IN WATER AREA (WP26; Regional)
Self explanatory. Energy and water are synonymous in this region.

(125 - Set A) APPLIANCES INDIVIDUAL METER AND REMOTELY REPORT THEIR ENERGY USE, ALLOWING ENERGY USERS TO IDENTIFY KEY ENERGY CONSUMPTION SOURCES / PREFERRED RATES ARE GIVEN TO HOMES THAT HAVE AND RETAIN SELF-METERING APPLIANCES (WP5; Regional) (*DELETE*)

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(126 - Set A) RECYCLING OF POST-CONSUMER PRODUCTS EXPANDS WITH THE INTRODUCTION OF LOCAL "GARAGE SALE" INTERNET GROUPS / NEIGHBOR HOOD BARTER AND RECREATIONAL SHOPPING REDUCE PRESSURES TO TRAVEL TO MALLS FOR WEEKEND DIVERSION / ADDITIONAL "LOCAL" RECREATIONAL AMENITIES FLOURISH (WP5; Regional) (*DELETE*)

(127 - Set A) FORMERLY DISPOSABLE PRODUCTS (E.G., AEROSOL CANS) BECOME REPLACED BY MORE COSTLY, BUT FULLY RECYCLABLE, PRODUCTS / LEADING TO INCREASED DEMAND FOR LOCAL MICROECONOMIES WITH JIT DOOR-TO-DOOR SERVICE WP5; Regional) (*DELETE*)

(128 - Set A) REDUCING THE GAP OF ENERGY CONSUMPTION PER CAPITA AMONG COUNTIRES WILL INCREASE THE NATIONAL NEED TO SAVE ENERGY IN WHATEVER WAY THERE IS

(158 - Set A) MORE DEVELOPED BUT RESOURCE CONSTRAINED AND REGULATED REGIONS OF THE WORLD DRIVE POLICY E.G. WESTERN EUROPE, JAPAN (WP26; Regional)
For regions of the world but applies within the U.S. People that are under tremendous pressure will move on things and start legislation. A particularly stressed region acts and drives policy in other regions. Example: The AIDS drug for the pharmaceutical industry.

(159 - Set A) TO EXTEND PEOPLES' HORIZON AND LESSEN DISCOUNTING USE TELECOMMUNICATIONS AND OTHER TECHNIQUES (SIM CITY, CLASS GAME, ETC.) THAT INCREASE FUTURE AWARENESS AND MAKE ENERGY EFFICIENCY OPTIONS MORE VIVID AND APPEALING (WP7; Regional)
Hal: The discussion referred to yesterdays diagram about space and time discounting. (see diagram) The point is that people re-focused on here and now (today) not the future. The question is what action can we take to make people more aware, to take action more seriously. For example – reference to diagram. Technology has allowed us to take something in distant space and bring it to here/now. Gave example of Orson Wells radio show "War of the World". We do very well taking distant time events that are physically far removed from us and try to associate it with something happening now. We can look at a problem that is something in the future by looking at something that is happening (e.g. Sweden) today to see how to impact it. Mountain Park was designed by Cal Halverson based on concept of Tapiola, a planned community in Finland. There was something at the time, yet far away that was used as an example. Education is important. You can use cause/impact games to make children aware of issues and effects. A lot can be done in this area. This diagram addresses question of ethics. If you look at something that is into the future (e.g. grand children) versus other poor nations (today yet far away). You can use technology to make people aware of various aspects of issues. More effort should be taken in this direction.

(160 - Set A) THE EMERGENCE OF THE US GREEN BUILDING COUNCIL'S GREEN BUILDING RATING SYSTEM WILL HAVE A PROFOUND INFLUENCE ON REDUCING THE ENERGY CONSUMPTION OF COMMERCIAL AND RESIDENTIAL BUILDINGS IN THE NORTHWEST
One of the things that have been occurring in architecture and engineering is the measurement of building performance. Green building rating system, such as Certified "Silver" rating. I'm proposing that it will have a high impact on building energy efficient buildings. In the next 5 years, this will be more than the norm than the exception.

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(161 - Set A) CONTINUED EFFORTS TO EDUCATE AND TRAIN BUILDING OWNERS AND DESIGN PROFESSIONAL ON ENERGY ISSUES WILL RESULT IN SIGNIFICANTLY BETTER BUILDINGS

Nathan: This recognizes the potential to re-educate builders on how they design buildings. If you look at majority of owner of franchises, many have never had a class in important elements related to efficiency.

(162 - Set A) HARM TO HUMAN HEALTH FROM FOSSIL FUEL AND OTHER CONVENTIONAL POWER WILL MOTIVATE ENERGY EFFICIENCY AT LEAST AS STRONGLY AS COST EFFECTIVENESS AND MORE STRONGLY THAN HARM TO FISH AND WILDLIFE

The difference between the pocket book and environment as motivating factors. As we move towards more natural gas and, temporarily diesel, maybe nuclear as well, we will see harm to human health as motivators for change as much as costs are motivators.

(163 - Set A) EXHORTATIONS TO CONSERVE WHEN THE EXHORTER MEANS TO CURTAIL USE OR FREEZING THE DARK WILL CONTINUE TO BEDEVILED ENERGY EFFICIENCY EFFORTS

Sarah: Many policy makers ask people to conserve, e.g. turn down thermostat. When we come back and ask for energy efficiency, people ask for new generations……

(164 - Set A) THE DEPARTURE OF A SUBSTATIONAL PORTION OF ALUMINUN IN THE REGION WILL REDUCE PRESSURE FOR CHEAP POWER AT THE EXPENSE OF ENERGY EFFICIENCY FISH AND WILDLIFE AND CONSUMER PROTECTION

The aluminum industry has been the strongest opponent to conservation issues. Since they may leave, this may reduce the pressure.

Comment: what is the pressure on cheap power? Reduce the pressure to have low cost power at the expanse of anything else? Answer: Do not modify statement.

(165 - Set A) THE REGION WILL BE A LEADER IN DEVELOPING AND EXPORTING CLEAN RENEWABLE ENERGY TO THE WORLD ESPECIALLY ASIA AND THE THIRD WORLD

Sarah: we have the potential to be the exporter of fuel cells an other types of renewable technology. I hope we develop it. The region will be a leader in developing and exporting clean renewable energy to the world especially Asia and the third world.

Q: Do you mean we see technology that is being development in the NW …..

A: Yes, some of the biggest factories (in Washington. and in Arlington) are here. We also have cheap electricity. We have potential to be an engine for renewable energy.

(166 - Set A) THE DEVELOPMENT AND DEPLOYMENT OF LIFE CYCLE COST ANALYSES AND RETURN ON INVESTMENT COST MODELLING PROGRAMS FOR NEW BUILDING AND MAJOR RENOVATIONS

Self explanatory.

(167 - Set A) THE TREND TOWARD ELECTRIC RESTRUCTURING IN THE WEST WILL HAVE A POSITIVE IMPACT ON THE PNW ENERGY EFFICIENCY BUSINESS DUE TO REGIONAL PRICE LEVELIZATION

Richard: When you levelize pricing there are winners and losers. This region will be a loser on price point. But will gain from de-regulation

(delete) = Decision was made to delete idea

Table 1: Clarification of National & Regional Trends / Events Having the Greatest Impact on Progress in Electric Energy Efficiency

(168 - Set A) VOLUNTARY REDUCTION IN USE OF ELECTRICITY HAS IMMEDIATE COST BENEFITS WHICH AFFECT DISTRIUBTED GENERATION

The voluntary reduction of use of electricity is one of the tools to reduce the gap between the time and the distance of supply and demand. You are affecting the supply issue by reducing demand voluntarily.

(delete) = Decision was made to delete idea

APPENDIX E

National Trends / Events Clusters

Classification of National Trends and Events Impacting Progress on Energy Efficiency into Affinity Clusters

CLUSTER #25: THE CHANGING ECONOMIC SITUATION

(130 - Set A) THE ACTUALITY OF A LONG TERM ECONOMIC DOWNTURN WILL DETER BUSINESS INVESTMENTS AND CONSUMER EMBRACEMENT OF ENERGY EFFICIENT PRODUCTS

(132 - Set A) WEALTH GROWTH THAT IS RELATIVELY SLOWER THAN THE GROWTH IN THE COST OF ENERGY RESOURCES

CLUSTER #6: GLOBAL DYNAMICS OF THE REGION

(128 - Set A) REDUCING THE GAP OF ENERGY CONSUMPTION PER CAPITA AMONG COUNTIRES WILL INCREASE THE NATIONAL NEED TO SAVE ENERGY IN WHATEVER WAY THERE IS

(140 - Set A) ONCE IN A WHILE A STORM WILL REEK HAVOIC AND WE FIND OURSELVES WITHOUT ELECTRICITY IF THIS HAPPENS, THESE TWO CANDLES ARE PROVIDED FOR YOUR CONVENIENCE REMEMBER THEY ARE HERE IF YOUR NEED THEM AND OUTAGES DON'T LAST TOO LONG, PLEASE LEAVE THE CANDLES FOR THE NEXT PERSON

(146 - Set A) OVER AND ABOVE THE VARIOUS COMMENTS THAT WERE DISCUSSED WITH RESPECT TO THE TRIGGERING QUESTION THE MOST IMPORTANT EVENT THAT IS GATHERING FORCE AND WILL HAVE MAJOR IMPACT ON THE ENERGY PRODUCTION AND THE QUESTIONS THAT SURROUND IT WILL BE THE DOLLAR EURO CONFLICT THAT IS GAINING STRENGTH IN LITTLE SHORT OF THE HORIZON

(149 - Set A) TRADITIONAL MANUFACTURING INCREASINGLY MOVES OFF SHORE RESULTING IN REGIONAL ENERGY SURPLUSSES

CLUSTER #14: CLIMATE CHANGE BELIEFS

(46 - Set A) CONTINUED CONCERN AND MORE DOCUMENTATION FROM THE SCIENTIFIC COMMUNITY WILL LEND CREDIBILITY ... (WP45; National)

(51 - Set A) GLOBAL WARMING WILL CONTINUE TO BE TREATED AS FACT DESPITE THE LACK OF HARD SCIENCE (WP21; National)

(135 - Set A) NORTH AMERICAN CLIMATE CHANGE WILL CREATE DEMAND FOR EFFICIENT SERVICES AND CHAOS FOR ENERGY SERVICE PROVIDERS

CLUSTER #7: POPULATION CHANGES

(147 - Set A) AGING BABY BOOMER POPULATION SHIFTS ENERGY USE TO HOME AND RECREATION

(152 - Set A) DEMOGRAPHIC TRENDS WILL CONTINUE TO PUT UPWARD PRESSURE ON HOUSEHOLD ENERGY CONSUMPTION THESE INCLUDE RISING INCOME, SHRINKING HOUSEHOLD SIZE, BIGGER HOUSES AND AN AGING POPULATION

Classification of National Trends and Events Impacting Progress on Energy Efficiency into Affinity Clusters

CLUSTER #4: LOCALIZATION

(13 - Set A) PEOPLE EMBRACE COMPACT URBAN FORM AS A WAY TO REDUCE AUTOMOBILE USE AND BUILD COMMUNITY. PUBLIC SHIFT IN TASTES IS DRIVEN IN PART BY HIGH ENERGY COSTS ASSOCIATED WITH LONG COMMUTES AND ACCESSIBILITY OF ALTERNATIVE TRANSPORTATION SYSTEMS (WP3; National)

(63 - Set A) PUBLIC DEBATE OVER USE OF TAX RELIEF FOR LOCAL COMMUNITY INFRASTRUCTURE VERSUS FOR INDIVIDUAL GAINS (WP5; National)

(131 - Set A) CONTINNUED DECLINE OF NW COMMODITY AGRICULTURE AT THE SAME TIME GROWTH OF NICHE AT THE SAME TIME LOCAL SMALL SCALE FOOD PROCESSING AND MARKETING

(138 - Set A) RESOLVING OR CONSOLIDATING PUBLIC POWER AND INVESTOR OWNED UTILITY SERVICE MODELS

(155 - Set A) THE GROWING COMMITMENT TO A "COMMUNITY OF PLACE" WILL LEAD TO CONSUMER INTEREST IN SUPPORTING LOCAL BUSINESSES PRODUCING IN A MANNER THAT IS ECOLOGICALLY RESPONSIBLE, SOCIALLY CONSCIOUSE AND REFLECTIVE OF THE LOCAL CULTURE

CLUSTER #5: DIRECTION OF FEDERAL RESEARCH

(66 - Set A) FEDERAL FUNDING FOR ENERGY RESEARCH IS LIKELY TO DECLINE, REDUCING TRUE PLATFORM INNOVATION AND FORESTALLING GAINS ON NEW SUSTAINABLE ENERGY TECHNOLOGIES (WP5; National)

CLUSTER #3: TECHNOLOGICAL LIFESTYLE

(148 - Set A) DEVELOPMENT OF NEW ELECTRICITY USING NEW CONSUMER TECHNOLOGIES WHEN SOLD AS LIFESTYLE ENHANCEMENT WILL CONTINUE INCREASE IN PER CAPITA USE IN

(151 - Set A) TECHNOLOGIAL IMPROVEMENTS IN EFFICIENCY WILL CONTINUE TO BUY IMPROVEMENTS IN AMENITY MAKING IT DIFFICULT TO ACHIEVE IN ABSOLUTE REDUCTION IN ENERGY CONSUMPTION

(156 - Set A) "GINGER"

CLUSTER #22: BOUNDARY-SPANNING COLLABORATION

(28 - Set A) MERGING OF SEVERAL CONCEPTS SUCH AS OPPORTUNITY FOR ALLIANCES IN ADVERTISING BUILDING ON ECO-SYSTEM SIGNALS 2.15 AND USING THE MODELS OF ADOPTION AND DIFFUSION TO CAPTURE ALL TYPES OF CONSUMERS WP18; National)

(64 - Set A) INTERCORPORATE & GOVERNMENT COLLABORATION FOR NEW, SUSTAINABLE PRODUCT DESIGNS / REGIONAL, NATIONAL AND INTERNATIONAL SUSTAINABLE DESIGN COMPETITIONS (WP5; National)

(136 - Set A) GOVERNMENT LOOKS TO INDUSTRY TO COLLABORATIVELY DESCRIBE THEIR SUSTAINABLE FUTURE RESPONDING TO NATIONAL & REGIONAL GOALS FOR ENERGY, ENVIRONMENT AND PRODUCTIVITY

Classification of National Trends and Events Impacting Progress on Energy Efficiency into Affinity Clusters

CLUSTER #15: CHANGE IN BUSINESS ETHICS

(6 - Set A) INCREASED CONCERN BY CONSUMERS / BUSINESSES FOR HOW THEIR ACTIONS IMPACT THE ENVIRONMENT, INCLUDING THE IMPACTS TIED TO INCREATED ENRGY CONSUMPTION PER CAPITA (WP32; National)

(7 - Set A) INCREASED CONSUMER TRACKING OF BUSINESS PERFORMANCE RELATED TO ENVIRONMENTAL GOALS (WP 32; National)

(32 - Set A) THE TRANSFORMATION FROM THE AGE OF INFORMATION TO THE AGE OF "ETHICS" WILL MEAN A GROWING CONSUMER INTEREST IN CONSUMERS DOING BUSINESS WITH BRANDS THAT ADHERE TO RESPONSIBLE PRACTICES, INCLUDING ENERGY PRACTICES (WP24; National)

(33 - Set A) RESPONSIBILITY MODELS LIKE THE "NATURAL STEP" WILL BE COME MORE COMMON IN OUR CULTURE, SPREADING TO BUSINESS, GOVERNMENT AND OUR EDUCATION SYSTEM (WP24; National)

(61 - Set A) MANAGEMENT RETHINKING CAN IMPROVE ENERGY EFFICIENCY BY FORMING HIGH RELIABILITY ORGANIZATIONS AND BY RESTRUCTURING OPERATIONS WHEN INTRODUCING NEW TECHNOLOGY SUCH AS ROBOTS AND INFORMATION SYSTEMS (WP7; National)

(65 - Set A) TAX POLICY CHANGES THAT WILL MAKE STOCKHOLDERS RESPONSIBLE FOR CORPORATE ENVIRONMENTAL DAMAGE, EVEN AFTER A STOCKHOLDER HAS SOLD SUCH SHARES. STOCKHOLDERS MUST LEARN TO THINK LIKE INDIGENOUS PEOPLES (WP5; National)

(157 - Set A) CORPORATE INVESTMENT IN SUSTAINABLE DEVELOPMENT DESIGN OPERATION, TECHNOLOGIES AND PRACTICES BECOME MAJOR FACTOR IN COMPREHENSIVE BUSINESS STRATEGIES

CLUSTER #1: RECYCLING

(44 - Set A) INCREASED RECYCLING (WP23; National)

CLUSTER #16: MANUFACTURING: TECHNOLOGICAL CHANGE

(35 - Set A) ENERGY EFFICIENT MANUFACTURING PROCESSES AND EQUIPMENT WILL LOWER DEMAND GROWTH NOT ONLY IN THE MANUFACTURING SECTOR BUT ALSO IN COMMERCIAL AND RESIDENTIAL (WP41; National)

(57 - Set A) DEMATERIALIZATION OF PRODUCTS WILL SAVE MUCH ENERGY. WITH CUSTOMIZATION OF MATERIALS GREAT STRIDES CAN BE MADE IN DEMATERIALIZATION – WEIGHT REDUCTION, FIBERGLASS CABLE TO REPLACE COPPER CABLE, ETC. (WP7; National)

(59 - Set A) NANOTECHNOLOGY AND MOLECULAR MANUFACTURING MAY BEGIN TO HAVE SOME IMPACT, ALTHOUGH THE STRONGEST IMPACT WILL OCCUR BEYOND FIFTEEN YEARS (WP7; National)

CLUSTER #18: THE GREENING OF DESIGN-BUILD

(29 - Set A) THE GROWING INTEREST IN ENERGY EFFICIENT AND "GREEN" DESIGN AND CONSTRUCTION. A COMPELLING ARTICLE IN THE FEB. 2001 ISSUES OF BUILDER MAGAZINE CITES THE IMPORTANCE TO GENERATION X OF THESE ISSUES (WP24; National)

(41 - Set A) GROWTH OF INTEREST IN "GREEN BUILDINGS (WP23; National)

CLUSTER #24: OIL & COAL DYNAMICS

(25 - Set A) RESURGENT COAL AND OIL LOBBIES CLASH WITH ENVIRONMENTAL MOVEMENT ORGANIZATIONS AND CITIZEN BACKLASH. OUTCOMES HIGHLY UNCERTAIN (WP34; National)

(134 - Set A) PREDICTED WORLD PEAK IN OIL AND GAS PRODUCTION WORLDWIDE IN THE NEXT DECADE COMBINED WITH GLOBAL INCREASE IN ENERGY DEMAND WILL DRIVE ENERGY EFFICIENCY

Classification of National Trends and Events Impacting Progress on Energy Efficiency into Affinity Clusters

CLUSTER #9: SUPPLY MINIATURIZATION

(3 - Set A) COMPACT, LONG-LASTING ENERGY SOURCES, INCLUDING FUEL CELLS AND BATTERIES, WILL POWER ELECTRONIC DEVICES SUCH AS PERSONAL COMPUTERS (WP17; National)

CLUSTER #17: DEVELOPMENTS IN SUPPLY

(26 - Set A) A RUSH TO BUILD NEW ELECTRICITY SUPPLY AND TO RATIONALIZE THE TRANSMISSION GRID WILL ENCOURAGE A RETURN TO ENERGY INVISIBILITY – PAPERING OVER THE PROBLEMATIC NATURE OF ENERGY USE (WP34; National)

(144 - Set A) FUEL OPTMIZATION WILL FOLLOW RECOGNITION OF ELECTRICITY AS A PREMIUM ENERGY SOURCE

CLUSTER #10: LOW COST ENERGY

(4 - Set A) CONTINUED DEVELOPMENT AND RELIANCE ON FOSSIL FUEL ENERGY GENERATION WITH LOW FIRST COST WILL SUBVERT INCREASED ENERGY EFFICIENCY IMPLEMENTATION (WP30; National)

(43 - Set A) LOW POWER AND GAS PRICES WILL INCREASE DEMAND (WP23; National)

CLUSTER #2: THE WESTERN CRISIS

(27 - Set A) CALIFORNIA ENERGY CRISIS WILL LEAD TO A GROWTH IN PUBLIC POWER AND A RENEWED INTEREST IN ENERGY EFFICIENCY. CITIEN ABILITY TO ACT IS CONSTRAINED BY KNOWLEDGE, SOCIAL/CULTURAL FACTORS, SUPPLY CHAINS, AND AGGRESSIVE PRO-CONSUMPTION MARKETING, MEDIA AND MERCHANDISING (WP34; National)

(30 - Set A) THE CURRENT "CALIFORNIA" ENERGY CRISIS WILL BE A CATALYST TO SPUR MORE INTEREST AND INVESTMENT IN CONSERVATION AND ALTERNATIVE POWER

(153 - Set A) REGIONAL POWER SHORTAGES AND PRICE SPIKES WILL RAISE IMMEDIATE INTERESTS IN ENERGY EFFICIENCY, BUT CONFOUND PROGRESS TOWARD LONGER MARKET TRANSFORMATION OBJECTIVES

CLUSTER #12: PRICE SENSITIZATION

(2 - Set A) INAPPROPRIATE PRICE SIGNALS DRIVE AN INCREASE IN MARKET INTERVENTIONS (WP17; National)

(16 - Set A) PRICE VOLATILITY AND/OR HIGHER PRICES FOR ENERGY WILL BE PASSED ON TO ENDUSER / CONSUMERS ... WHICH WILL FOSTER A STRONG DEMAND "GREEN OR SUSTAINABLE" PRODUCTS (WP27; National)

(34 - Set A) THE REFUSAL OF REGULATORS TO ALLOW ENERGY PRICE SIGNALS TO FLOW THROUGH TO CONSUMERS WILL INHIBIT PENETRATION OF ENERGY EFFICIENCY AND DEMAND RESPONSIVENESS (WP41; National)

(45 - Set A) INCREASING PRICES FOR ENERGY WILL CAUSE CONSUMERS TO USE IT MORE EFFICIENTLY (WP45; National)

(62 - Set A) PEAK DEMAND MANAGEMENT, INCREASED TRANSPARENCY OF ENERGY COST AND CONTROLLABILITY AT THE HOME LEVEL, ALONG WITH THE MANAGEMENT OF ENERGY AT THE PLANNED COMMUNITY LEVEL, WILL GREATLY REDUCE THE PACE OF INCREASE IN ENERGY DEMAND (WP26; National)

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CLUSTER #11: POLICY: REGULATION & MARKETS

(18 - Set A) GROWING RELIANCE ON A COMPETITIVE MARKET FOR MAKING ENERGY RELATED ALLOCATIONS AND DECISIONS (WP40; National)

(19 - Set A) SUCCESS IN DESIGNING ECONOMIC INCENTIVES INTO EFFICIENCY DECISIONS. DECREASED RELIANCE ON POPULIST FUNDING AND MOTIVATION FOR EFFICIENCY GAINS (WP40; National)

(31 - Set A) THE ONGOING DEREGULATION TREND WILL DRAMATICALLY CHANGE HOW POWER IS GENERATED AND CONSUMED (WP24; National)

(36 - Set A) POLICY MAKERS WILL DEVELOP POLICIES TO SENSITIZE CONSUMERS TO THE NEED TO IMPROVE ENERGY EFFICIENCY (WP41; National)

(49 – Set A) DELETED IDEA

(60 - Set A) ADDRESSING THE WIDELY PREVALENT "DISCOUNTING DILEMMA" CAN HAVE A MAJOR IMPACT ON ENERGY CONSERVATION. THIS REFERS TO DISCOUNTING DISTANT TIME AND SPACE AND FOCUSING ON THE "HERE AND NOW", I.E., TAKING THE SHORT-TERM VIEW (WP7; National)

(129 - Set A) AIR REGULATIONS CONVERTED TO OUTPUT BASED LIMITS

(133 - Set A) RETAIL DEREGULATION AND POLLUTION REGULATIONS REDUCED TO POLLUTION TAXES WILL STIMULATE ELECTRIC ENERGY EFFICIENCY

(137 - Set A) "DEREGULATION" - SORTING OUT ISSUES OF WHO SHOULD DO WHAT WITH WHOSE MONEY

(139 - Set A) POLITICAL AGENDA THAT ALTERNATIVELY LINK AND UNCOUPLE ENERGY STEWARDSHIP FROM OTHER SOCIAL STEWARDSHIP MISSIONS CONFUSE THE PUBLIC

(141 - Set A) FREE MARKET ECONOMICS IS A CREED NOT NECESSARILY A TRUTH

(143 - Set A) AS THE PUBLIC REDEFINES ELECTRICITY FROM A COMMODITY TO AN ENTITLEMENT CONSUMPTION WILL INCREASE

(145 - Set A) ENERGY EFFICIENCY WILL BE MAINTAINED AS SPENDING IS VIEWED AS A PUBLIC BENEFIT CHARGE RATHER THAN A REGULATORY ASSET

CLUSTER #13: DISTRIBUTED POWER

(5 - Set A) IN RESPONSE TO STANDARDIZATION AND IMPERSONALTION OF GLOBAL ECONOMY, LOCAL COMMUNITIES WILL EMPLOY INNOVATIVE CONSUMER DRIVEN TOOLS SUCH AS LOCAL CURRENCIES TO ENCOURAGE DEVELOPMENT OF IMPORT REPLACING PRODUCTS INCLUDING LOCAL ENERGY GENERATION FROM RENEWABLE SOURCES

(15 - Set A) WIDESPREAD BROWN OUTS AND BLACKOUTS FORCE HOMEOWNERS AND COMMERCIAL LANDLORDS TO TURN TO DECENTRALIZED ENERGY GENERATION SYSTEMS IN ORDER TO ASSURE RELIABILITY AND SUSTAINABLE, RELIABLE TECHNOLOGIES BECOME COST EFFECTIVE (WP3; National)

(47 - Set A) IMPROVEMENTS IN TECHNOLOGY AND INCREASED PRICES WILL LEAD TO MORE DISTRIBUTED GENERATION (WP45; National)

(48 - Set A) THE NATIONAL DEPLOYMENT OF DISTRIBUTED ENERGY RESOURCES WILL INCREASE RAPIDLY (SEE 1.2.1) (WP21; National)

(67 - Set A) BROAD ACCESS TO SELLING SURPLUS ENERGY BACK INTO THE GRID WILL OPEN UP SMALL AND MICRO POWER GENERATION ELECTRICAL ENERGY MARKET NICHES (WP5; National)

(142 - Set A) IN VIEW OF FUTURE UNCERTAINITIES PLAN FOR NEW ENERGY PRODUCTION SYSTEMS THAT RECQUIRE LESS LEAD TIME THAN TRADITIONAL LARGE-SCALE SYSTEMS AND THUS INCREASE FLEXIBILITY (THE LESSONS OF WPPS & SOUTHERN CA. EDISON CO. FORCAST HISTORY)

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CLUSTER #19: SENSORS & CONTROL

(20 - Set A) EFFICIENCY RELATED SENSOR TECHNOLOGIES ARE INCREASINGLY EMBEDDED IN BUILDINGS AND APPLIANCES (WP48; National)

(37 - Set A) ENERGY USAGE AND EFFICIENCY-RELATED SENSORS AND CONTROLS INSTALLED IN COMMERCIAL BUILDINGS, RESIDENCES, AND EQUIPMENT SUCH AS HVAC WILL NOT ONLY IMPROVE ENERGY EFFICIENCY BUT ALLOW REAL-TIME CONTROL OF ENERGY CONSUMPTION (WP41; National)

CLUSTER #20: SMART APPLIANCE NETWORK

(17 - Set A) INTEGRATION OF THE COMMUNICATIONS AND ENERGY TECHNOLOGIES INTO AN ENERGY WEB CONCEPT THAT WILL REDUCE COSTS, IMPROVE THE ENVIRONMENT, ALLOW END USERS TO PARTICIPATE IN THE ENERGY MARKETPLACE, ETC. (WP27; National)

(38 - Set A) SMART APPLIANCES WITH EASY TO USE INTERFACES THAT CAN BID INTO THE ON/OFF MARKET AND STORE ENERGY BECOME THE NORM (WP51; National)

(39 - Set A) SMART METERS AND COMMUNICATIONS SYSTEMS ALLOW AUTOMATED ACCOUNTING FOR TIME OF DAY RATES, CONTROL OF DISTRIBUTED GENERATION, ENERGY STORAGE SYSTEMS AND DISPATCHABLE SHUT DOWN OF VARIOUS HOUSEHOLD LOADS (WP51; National)

(40 - Set A) REGIONAL UTILITIES WORK TOGETHER TO BRING ABOUT 2.2.2 SOONER THAN IT WOULD OTHERWISE TO GIVE THE REGIONAL A "SUSTAINABILITY ADVANTAGE (WP51; National)

(52 - Set A) ENERGY AND BROADBAND COMMUNICATIONS WILL BE SUBJECT TO INCREASING CONVERGENCE (WP21; National)

(56 - Set A) SMART APPLIANCES AND BUILDINGS (WP46; National)

CLUSTER #21: DIGITAL ECONOMICS

(21 - Set A) KNOWLEDGE VALUE INCREASINGLY BECOMES THE EXPLOITED RESOURCE BASE RATHER THAN ENERGY (WP48; National)

(22 - Set A) E-COMMERCE IS INCREASINGLY CONDUCTED FROM WITHIN THE HOME (WP48; National)

(150 - Set A) INCREASING USE OF INTERNET FOR E-COMMERCERS RESULTS IN CHANGING PATTERN OF RESIDENTIAL, COMMERICAL AND TRANSPORTATION DEVELOPMENT PATTERNS

(154 - Set A) INFORMATION OVERLOAD

CLUSTER #8: ??

CLUSTER #23: ??

Classification of National Trends and Events Impacting Progress on Energy Efficiency into Affinity Clusters

UNCLASSIFIED

(1 - Set A) THE RATE OF RETURN ON INVESTED CAPITAL FOR ENERGY EFFICIENCY INITIATIVES WILL BE REQUIRED TO COMPETE WITH OTHER INVESTMENT OPPORTUNITIES (WP11; National)

(8 - Set A) PUBLIC AND PRIVATE LIFE CONVERGES IN THE HOME - SHOPPING, EDUCATION, WORK, AND ENTERTAINMENT (WP42; National)

(9 - Set A) IMPROVEMENTS IN THE ENERGY EFFICIENCY OF MANUFACTURING SIGNIFICANTLY TEMPER THE GROWTH IN ENERGY DEMAND (WP42; National)

(10 - Set A) AN INCREASE IN POWER SHORTAGES, BROWNOUTS, AND PEAK LOAD PRICE SPIKES, RE-SENSITIZES THE PUBLIC (WP42; National)

(11 - Set A) THE MIDLIFE CRISIS FOR GENERATION X (WP42; National)

(12 - Set A) THE EMERGENCE OF GENERATION Y (WP42; National)

(14 - Set A) CONSUMERS REJECT "MCMANSIONS" AND EMBRACE "GREEN HOMES" DESIGNED TO REDUCE ENERGY AND OTHER RESOURCE CONSUMPTION. NEW LABELING REQUIREMENTS IN RESIDENTIAL AND COMMERCIAL REAL ESTATE SALES MAKE THE REAL COST OF HOMES TO THE ENVIRONMENT OBVIOUS TO PURCHASERS (WP3; National)

(53 - Set A) GLOBAL CLIMATE CHANGE (WP35; National)

(54 - Set A) INCREASED PENETRATION OF DIGITAL COMMUNICATIONS AND CONTROL TECHNOLOGIES FOR MANAGING ENERGY USE (WP35; National)

(55 - Set A) MASS CUSTOMIZATION (WP35; National)

APPENDIX F

Clarification of Action Options

Table 2: Clarification of Action Options

Triggering Question:

"What short-term regional action options in your view will impact, in a desirable way, the anticipated effect of the national/regional trends as display in the Plausibility Map?"

(1 - Set B) DEVELOP TIERED RATE PROPOSALS TO ENCOURAGE ENERGY EFFICIENCY AND/OR DISTRIBUTED GENERATION INSTEAD OF GROWTH IN LOADS

A: amended the statement. The tiered rate implies any type of difference in rate(i.e. block rates, tiered rates to wholesale customer, industrial customer or residential customer.)

C: Proposals could initiate actions for energy generation.

(2 - Set B) ESTABLISH ENERGY EFFICIENCY AS THE CORE OF SUSTAINABILITY

If indeed there is a section of the public that wants to embrace sustainability in their purchases, businesses, etc., the issue is that right now energy efficiency is a small component of it. It should be the core value of it to move energy efficiency along.

(3 - Set B) CONDUCT OR SURVEY EXISTING RESEARCH REGARDING FUNDAMENTAL BELIEF STRUCTURES AS THEY RELATE TO ENERGY AND NATURAL RESOURCE USE

A: Not sure we know what motivates people related to energy efficiency. Conduct research to identify fundamental belief structure to identify target points and identify market and program strategies to leverage

C: Not only don't we know but it is often wrong.

C: Behavioral economics work being don on why people react the way to do. It is a problem with everything up her on issues like tiered rates, transparency, etc. It doesn't work and there are reasons why people function differently on micro basis an macro basis. People drive cross town to save $10. To by a new clock radio but wont to buy a new car. Function differently related to context. We see consequence and not stuff. A different set of impulses drive behavior. Need to understand how economics works on micro behavior if we want to influence behavior.

Q: Does this just relate to economic behavior

A: Fundamental beliefs in its broadest sense.

(4 - Set B) ESTABLISH COMPETITIVELY NEUTRAL, EQUITABLE REQUIREMENTS FOR UTILITY INVESTMENT IN ENERGY EFFICIENCY

The strongest example of this, at this point, is the public benefit charge in Oregon, which is in the way of being implemented, maybe in 18/19 other states as well. It is not the only way to do it, but it is important.

(5 - Set B) SOLICIT PROPOSALS FOR A "SMART WALL PLUG" SYSTEM TO HELP HOUSEHOLDS DISCOVER THEIR ENERGY SINKS

A: this proposal is in response to item 82 re sending price signals to consumers. Give them means of leaning how to manage energy uses better. Rent or borrow plug to monitor energy flow through. Use plug to tell them how much energy is being used. Solicit a proposal for anyone who can develop it and demonstrate how electronic consulting service can help monitor use.

C: Technology already exists re data logging line …. program. Could do a study of current energy usage

C: May or may not be same thing I'm referring to.

(delete) = Decision was made to delete idea

Table 2: Clarification of Action Options

(6 - Set B) BEGIN ADOPTION OF GREEN TAXES AS A MECHANISM FOR INCREASING AWARENESS OF TRUE COSTS AND ENVIRONMENTAL IMPACTS OF ENERGY USE

Self explanatory.

(7 - Set B) REVIEW BARRIERS TO DISTRIBUTED GENERATION AND TRY TO REDUCE OR ELIMINATE

Self-explanatory.

(8 - Set B) PROVIDE INCENTIVES TO ATTRACT COMPANIES TO THE NW THAT MAKE ENERGY EFFICIENCY PRODUCTS / GREEN PRODUCTS

In Oregon, the tax incentives program aims at getting high tech companies to establish here. It could be directed to bring companies that produce energy efficiency products, or energy efficient companies.

(9 - Set B) THE NW IS RECOGNIZED AS THE "SILICON VALLEY" OF REVOLUTIONARY, DISTRIBUTED ENERGY TECHNOLOGY

A: context is what can be done on energy efficiency. Given the challenge facing with 3000 mw region wide, a successful conservation program might achieve 1000 mg of the problem. May be hydro devaluation and a doubling of population growth. Must be something fundamentally new. Need to invest in a new technology that can resolve it . well be left with a complicated conversation especially when crises leaves. There are machines that moved digital information from central machines to laptops the same type of revolution is possible but we must invest research development, tax and codes that will move the revolution faster. Needs to be focused on soon lots of available investment resources. Needs to be coordinated . use half of money to move forward.

C: this is a statement of outcome

What short term regional action options.

This is accomplished by unequal investment in research development man

Rapid changes in rate structures codes

Tax incentives for business and consumers.

Increases computing capacity. Consumers needed it. Electricity is more central to lives.

People will take care of the movement toward change.

C: If that were a success could we eliminate central style plants like EPA?

A: Yes,

C: If you take 10 yrs to do it you have energy savings. You must create a clear path to get technology to market then let market take care of growth.

(10 - Set B) TO CREATE A ROBUST FINANCIAL MODEL THAT BUILDING OWNERS AND MANAGERS CAN USE TO BRIDGE INITIAL CAPITAL COSTS WITH THOSE COSTS ASSOCIATED WITH MAINTENANCE OPERATIONS I.E. INTERNAL RATES OF RETURN

One of the main barriers in working with architects and engineers when trying to build energy efficient buildings, is the challenge of having an initial fixed capital cost and the problem of higher costs of energy efficient materials. They need a financial prospect to provide incentives, better return on investment, so that these decisions would take a new flavor.

(11 - Set B) TIME PUBLIC OUTREACH AND OTHER CONSUMER AWARENESS EFFORTS CONSISTENT WITH RATE INCREASE ANNOUNCEMENTS

A: Take advantage of opportunity when consumers are engaged in issue. We should be prepared with materials. Time is of essence.

(delete) = Decision was made to delete idea

Table 2: Clarification of Action Options

(12 - Set B) ENCOURAGE STATE REGULATORY AGENCIES TO EXPERIMENT WITH INNOVATIVE PRICING MECHANISMS AND CONSUMER SIGNALS

This is self-evident. Another thought here is the idea of pushing deregulation at the retail level.

(13 - Set B) PROMOTE THE FORMATION OF A REGIONAL FOURM TO ATTRACT COMPANIES INTO THE REGION WHO WILL PROVIDE ENERGY EFFICIENCY PRODUCTS AND SERVICES

A: The Pacific northwest had many smart companies this is an opportunity for them to work together. How do you bring them together to take a lead. This regional forum might attract companies into region, also attract univ. to provide intellectual background, and companies to provide products and services. Energy efficiency is more that smart devices. How to get devices to interact with each other and customers

(14 - Set B) ENHANCE ENERGY AND EFFICIENY SOPHISTICATION OF LOCAL SUSTAINABILITY EFFORTS PLANNERS, MEDIA AND PROFESSIONALS (E.G., PROCUREMENT OFFICIALS, REALTORS, BANKERS, ETC.)

Consumer and small business get information have to trust sources. This lacking and quite uneven in the region. Give them the competencies and tools to think about the problems discussed here. E.g. talking about global warming on the weather news, etc.

(15 - Set B) USE PUBLIC CREDIT TO CREATE A BUYING / PURCHASE GUARANTEE COOPERATTIVE TOOL FOR REGIONAL HARDWARE PURCHASES

A: Suggestion that instead of relying on individuals to make individual .decisions that have capital accumulation constraints, aggregate public credit to commit to min. purchase of hardware that could be deployed broadly. EX. If demand for air service demand is unknown. If seats paid by paying g passengers community doesn't pay but if not, they pay. Use public credit to commit to 1000 horizontal access washers and commitment to using to customers. If cant sell public credit has to eat cost until inventory is old

(16 - Set B) FUND INCENTIVES FOR ENERGY SAVING BUILDINGS, EQUIPMENT AND VEHICLES WITH A TAX ON EMMISIONS OF CO2 AND OTHER POLLUTANTS

Attempt to respond to items 82 and 97 (from yesterday) joined together. If you are trying to prevent pollution you might as well fund the things that will work for that.

(17 - Set B) EDUCATE THE NW PUBLIC ON THE ACTIONS THEY CAN TAKE TO MANAGE THEIR ENERGY FUTURE

A: Recommendations that are similar to this. Idea is to use opportunity to bring education level of what consumers can do and mobilize them to take action. Marketing side is to bring programs to help mobilize tem further.

(18 - Set B) INFLUENCE PNW ENERGY REGULATORS TO ALLOW / ENCOURAGE RTP / TOD RATES

Self-explanatory. That comes from an education program, not only with legislators but also for the utilities, in terms of what are their benefits, collectively and individually. In the bigger picture, explain why it is good for the environment.

(19 - Set B) STANDARDIZE THE RESTRUCTURING OF THE WSCC WHOLESALE AND RETAIL ELECTRIC MARKETS TO FORCE PRICE TRANSPARANCY ACROSS ALL RATE CLASSES NO EXCEPTIONS, NO PRICE CAPS THIS WILL DRIVE ENERGY EFFICIENCY

A: the notion is that electrons don't recognize the borders. The different deregulation may be in conflict with what someone else is doing I the area. Alliance could standardize elec. Restructuring on the wholesale and retail side. Price transparency at retail level will drive energy efficiency. Oregon is inoculating resident class but large commercial Industry will see transparency once

(delete) = Decision was made to delete idea

transition charge goes away. It's a regional problem that should be handled regionally not state by state.

Q: Western Coord. Council is large and multi-jurisdictional.

A: breaking down natural barriers. We are the world. Need to think large. It is doable.

(20 - Set B) PROVIDE COMPREHENSIVE DEVELOPMENT AND DEPLOYMENT NEWS AND INFORMATION ON DER AND DSM AND DER DSM LINKAGE

This is something that we are in the process of doing already. Fairly self-evidence. The need is clear, because there are many moving parts for what we call the distributed generation. Trying to track all of it is very difficult. What is being proposed here is to bring it all together to help the deployment of the technologies and products which are on the way as we speak.

Question: how and who is the audience. Answer: On the internet for everyone. The number of people interested on this, developers, suppliers, government, etc.

(21 - Set B) ENCOURAGE POLICIES THAT FACILITATE AN EFFECTIVE ELECTRICITY MARKET THAT ALLOWS CONSUMERS AND THEIR AGENTS TO SEE AND RESPOND TO ELECTRICITY COSTS

A: Time where idea has been dismissed into a box (i.e. Chicago) No others have been shown to have explanation of power on behavior than prices. Cannot have reasonable polices without reasonable design. Other things can complement this but this is an important basis for this to work.

C: This can be contrasted with ineffective market

C: Yes Calif. Is not a good model.

(22 - Set B) SUPPORT LEGISLATION THAT WILL REQUIRE BOTH IMMEDIATE AND LONG-TERM CONSERVATION / RENEWABLE PROGRAMS

This comes under the obvious category. Minor difference is that we needed something immediate due to the current crisis and then dial something for a longer term commitment.

(23 - Set B) ENGAGE LOCAL MARKETING FIRM TO EXPLORE THE IDEA OF MAKING ENERGY EFFICIENCY TRENDY

A: brainstorming. Gen. Pop. Is sensitized to energy issues. May be opportunity to make energy efficiency need to figure out hook to engage ideas.

C: Change perceptions of what a lifestyle is if we could use less space and energy we'd have money to spend on transportation system to get to vacations faster?

C this may be related to logo. Do some energy efficiency song that Brittany Spears could sing.

(24 - Set B) ESTABLISH A STANDARDIZE PROTOCOL FOR SMART METER INSTALLATION ACROSS THE REGION

A lot of different vendors are developing smart systems but are talking to each other. There is a need for some standardization.

Comment: What about promoting competition among them? Answer: this is more generic than that.

(25 - Set B) ENCOURAGE WIDESPREAD INSTALLATION OF ELECTRIC METERING THAT ALLOWS ALTERNATIVE RATE DESIGN

A: need infrastructure to support rate design. Test metering systems to select one that will answer question. Didn't say tiered rates but an alternative rate design.

(delete) = Decision was made to delete idea

Table 2: Clarification of Action Options

(26 - Set B) PROVIDE INCENTIVES FOR BUSINESSES IN THE TAX CODE THAT FAVOR INVESTMENTS IN ENERGY EFFICIENCY EQUIPMENT I.E. CAPITAL COSTS DEPRECIATION IN 1 YEAR

About the expenditure for energy purchases. Most of the plant managers are quite happy with things as they are as long as things are moving swiftly, not knowing of other benefits related to energy efficiency. If capital investment was made easier, plant managers would have more access to it and take action.

Comment: Current legislation has been signed to include non-profit organizations.

(27 - Set B) EDUCATE AND ENCOURAGE LEGISLATIVE MEMBERS ON BENEFITS OF INCENTIVES THAT WILL ADVANCE ENERGY EFFICIENCY

A: Similar to others. Beneficial for Idaho to be tied into regional energy efficiency lobby to educate legislators to bring up options that are palatable to local circumstances. Education to move these thing forward and bring ideas to others.

Q: Is this a cry for help from Idaho?

(28 - Set B) ENCOURAGE RESPECT OF THE COMPETITORS FOR ENERGY FOR THE LEGITIMATE NEEDS OF EACH OTHER

If CA crisis is an example, everyone is trying to blame each other making it difficult to find a solution. If everyone understands the situation better, then they can start to find a solution.

(29 - Set B) PROVIDE AN AUTHORIATATIVE ANALYSIS OF THE TRANSMISSION AND DISTRIBUTION BENEFITS AND THE ENERGY COST BENEFITS OF DISTRIBUTED GENERATION

A: the problem is that people identify solution that we haven't been able to quantify what is beneficial. Some type of analysis. If what we consider T&D and energy. If you do analysis you can focus on problems.

Q Do you mean transmission and neighborhood by neighborhood?

A Bonneville

Q: Seems trying to discover how much to put into distributive enhancement. If you put distributive at end of line rather than central city

A: Could put in city if it meets needs but need analysis of benefits.

C: Involved with the Consumer Energy Council in Washington that's trying to reach consensus about distributive gen. Need to share the benefit amount to end users. Need this to have a process to share benefits that may be regulatory or contractual

Q: Is intent that benefits to utility system or to end user

A: A tool for end user to decide. There are multiple beneficiaries.

Q On the cost side, does this refer to installation cost, or potential reduced liability of grid of having additional supply sources and other non-financial benefits.

A: develop skeleton for analysis and refine it . People have ideas. I see a regression analysis with many variables. Need to put in coefficients to determine effect.

(30 - Set B) ESTABISH ENERGY EFFICIENCY AS A PRUDENT PRICE HEDGING STRATEGY FOR BUSINESS AND INDUSTRY

This is in the same vein as other thoughts expressed here today. In the light of the current energy crisis it was brought forward that efficiency is being considered more of an investment strategy. It is viewed as going long in the market, such as investing on a hedge.

(delete) = Decision was made to delete idea

Table 2: Clarification of Action Options

Question: How something that is really not a resource at the present time can be used as a hedge, this is smoke and mirrors. Answer: Very simple, assuming you do in a debt basis, establishing a fixed price for the energy you are not consuming. It is a price hedge.

(31 - Set B) ESTABLISH AND MAINTAIN A CLEARHINGHOUSE OF STANDARD CUSTOMER FOCUSED ENERGY EFFICIENCY MEASURES

A: Elaborating on time- of- essence when there's an announcement of rate increase. Need ready made responses. As the customer goes to web-site, if they have a good experience they can go back for other measures on a continued basis.

(32 - Set B) ESTABLISH REASONABLE ACCOUNTABILITY MECHANISMS FOR UTILITY INVESTMENTS IN ENERGY EFFICIENCY

We need a reasonable accountability mechanism. This relates to all three items proposed by me today. We are in love with the idea of price and rate structure as a signal. I'm extremely worried that if we see it as a "silver bullet", then we are in trouble. Prices never included environmental costs, for example. And rate designs that don't get to the decision makers don't get the results. We need to take into account the three legs of the stool: prices (or rate designs), energy codes, and funding of energy efficient products/generation.

Comment: Consumer utilities have boards that are their accountability system Are you offering more than that? Answer: Yes so that we are able to have more transparency to hold everyone accountable.

(33 - Set B) SUPPORT EFFORTS TO PROVIDE FULL LIFECYCLE COST ACCOUNTING FOR ENERGY INTENSIVE AMENITIES (E.G., HOT TUB)

A: We should support efforts to identify the real cost of something that's an amenity. Create awareness around what is costly and why.

(34 - Set B) REMOVE BARRIERS TO ENERGY EFFICIENCY INCLUDING PROVIDING EASY ACCESS TO INFORMATION PRODUCTS AND SERVICES AND CITY CODE ADJUSTMENTS AS NECESSARY

Self explanatory.

(35 - Set B) INTEGRATE THE LESSONS OF BEHAVIOR ECONOMICS INTO CONSERVATION STRATEGIES I.E. PRICING, RATE DESIGN, POINT OF SALE REBATES

A: Step beyond kitchen readout. Having information feedback loop, still don't make behavioral changes unless we figure out why people don't respond to. how people respond to economic signals ….perverse way

(36 - Set B) ESTABLISH A REGIONAL ENTITY (NEEA LIKE) TO PROMOTE ENERGY EFFICIENCY AND RENEWABLE RESOURCE RESEARCH AND DEVELOPMENT

(37 - Set B) INVEST IN SMALL - SCALE, HYPER - EFFICIENT ENERGY MACHINES

A: Follows up on nano-technology. Make end uses consume as little as

(38 - Set B) PROMOTE AND INCENT THE INTEGRATION OF THE US GREEN BUILDING COUNCILS LEED PROGRAM TO BUILDING OWNERS AND DESIGN PROFESSIONALS

Self evident. One more round for green building.

(39 - Set B) SUPPORT ASSESSMENTS OF ENVIRONMENTAL IMPACT RELATED SPECIFICALLY TO UNDERLYING MOTIVATIONS OF CONSUMERS

A: Understand the underling motivation not just economic motivation, then can assess the environment aspects that will motivate the. Relating impacts relating to environments. To consumers

(delete) = Decision was made to delete idea

Table 2: Clarification of Action Options

(40 - Set B) ENCOURAGE COMPLETION AND ADOPTION OF THE IEEE STANDARD FOR INTERCONNECTION OF DG SYSTEMS WITH THE UTILITY GRID

This speaks to the distributed generators and the fact that costumer owned generators can create several things such a safety issues. Standards are necessary to avoid this.

(41 - Set B) ENCOURAGE REGULATORS TO INCREASE THE INCENTIVES TO UTILITIES TO INVEST IN HIGH EFFICIENCY DISTRIBUTION NETWORKS

A: cover loses on distribution network which is 5-8 % do we pay incremental cost? Incentives don't swing debate toward efficiency end of scale.

Q: Would this include incentives to make distribution network by distributing generation on substations, etc.

A: Mainly aimed at taxing system. This targets loss.

(42 - Set B) EXPLORE THE WAYS IN WHICH LAWS, REGULATIONS, TAXES, AND SUBSIDIES DISCOURAGE ENERGY EFFICIENCY AND CAN BE RESTRUCTURED TO ENCOURAGE ENERGY EFFICIENCY

Obvious. My thinking is that it would be nice to have all this stuff in one place, how laws etc. work. Most of the public is unaware that current policies discourage efficiency. There are many things that can be done to improve efficiency using these mechanisms.

(43 - Set B) LEVERAGE CONSUMER DEMAND PULL BY TARGETING LARGE AMOUNTS OF CAPITAL (SYSTEM BENEFIT CHARGE REVENUES) ON SELECTED SEQUENTIAL HARDWARE SOLUTIONS

A: none

(44 - Set B) ADOPT NATIONAL AND REGIONAL CAMPAIGN FINANCIAL REFORM TO RESTORE THE VOICE OF INDIVIDUALS AND COMMUNITIES IN LEGISLATIVE DECISION MAKING

Easy to dismiss something like this as too difficult or too big to be implemented. However, as an example of the problem, an article on the news today indicates that 3 billion dollars were used to influence current elections. Of those, 30 million would have come from the oil industry. Stakeholders should have a stronger voice in legislative decision making.

(45 - Set B) DEVELOP EDUCATIONAL AND PROMOTIONAL MATERIAL TO HELP CONSUMERS UNDERSTAND THEIR OPTIONS TO RESPOND TO THE PRICES THAT THEY SEE

A: Recognition that consumers need to understand and be educated about their options to respond to prices.

(46 - Set B) STRONGLY ENCOURAGE (WITH INCENTIVES) IMPLEMENTATION OF COMMUNICATION INFRASTRUCTURE FOR IMPLEMENTATION OF REAL TIME ENERGY PRICING PRINCIPLES

Self explanatory. It could take a form of hard copy, bill stuffer could be on-line, any number of things that could educate consumers.

(47 - Set B) BAN ELECTRIC RESISTANCE HEAT FOREVER

A: There is truth to this. Can get more heat out of gas that electricity. Inefficiency that we could do without. In context of trigger question,. We might work toward sun setting advertising utilities are doing to promote this in future. Put in background and let gas people come to forefront. Bridge construction teams and operations teams….. EAV systems have fight between lifecycle cost issue. Often stuck with electric heat but later rip out and put in gas.

Q: How would this apply to residential e.g. new construction code?

A: If consumer know lifecycle cost or if a tax associated with some amenities

(delete) = Decision was made to delete idea

C: Resistance heating…should be a long tem goal to transfer electricity to better uses.

A: Power not being used well should be put to better use.

C: Should modify statement to say ban electric resistance heat.

A: COP and EER better performer. Ban auxiliary strip.

Q:

A: Alliance should address this

(48 - Set B) INCREASE DEPLOYMENT OF BIOMASS AND BIOFUELS GENERATION HARDWARE

The underlying rational here is that by using biomass and biofuels you are generating energy and getting rid of things.

(49 - Set B) ESTABLISH EQUITABLE INTERFACE RULES AND PRACTICES FOR INSTALLATION OF NONUTILITY METERING, CONTROL AND DISTRIBUTED GENERATION EQUIPMENT

A: clear

(50 - Set B) BEFORE IMPLEMENTING TIER RATES IDENTIFY EQUITABLE OPTIONS FOR ADJUSTING RATES / SUPPLIES FOR NEW GROWTH WHETHER BY INDUSTRY OR SERVICE AREA

One of the reasons that companies may fight that is the issue of growth. There has to be some sort of adjustment for that growth that is equitable.

Comment: Wholesale? Answer: Yes. But it could apply either way.

(51 - Set B) ESTABLISH STRATEGIC PARTNERSHIPS WITH THE BUSINESS COMMUNITY AND CALL UPON ITS INFLUENCE TO AFFECT LEGISLATION

A: This would call upon business community on issues where there is common interest to use their influence.

(52 - Set B) ADOPT A REGION WIDE DSM MARKETING STRATEGY THAT HAS A COMMON THEME OR LOGO

There is a lot of potential synergy out there, if everybody is together in a common market plan. A theme or logo could be very powerful and less confusing to the customer.

(53 - Set B) DEVELOP COLLABORATION BETWEEN THE ALLIANCE AND THE OREGON ENERGY TRUST

A: The new non-profit trust has $50mil/yr to spend on utilities. Synergy of working with the Alliance and ability to influence business and individuals could create a center of momentum for regional activities especially if Bonneville worked with them too.

(54 - Set B) PROMOTE A BUSINESS MODEL FOR MANUFACTURERS THAT INCLUDES THE RESPONSIBILITY FOR ITS COMPLETE PRODUCT CYCLE

In general, energy input from products made from raw materials is much higher, products made from recycled materials. If producers are responsible for the costs of the lifecycle of the materials, they would be more conscious of the decisions. An example of this in Europe is VW.

(55 - Set B) IDIENTIFY AND PROMOTE EFFICIENT ALTERNATIVES TO SUPPORT THE INTERNET INFRASTRUCTURE

A: Keying off influence map re internet economy and e-commerce will be national trend. There is growth in internet infrastructure. Has a negative impact on energy demand in northwest. Existing technologies could drop energy demand by this segment. Not being done. Solving this is a big part of keeping our economy growing.

(delete) = Decision was made to delete idea

Table 2: Clarification of Action Options

(56 - Set B) CONDUCT ROBUST IRP ON A REGION WIDE BASIS

Reinstate IRP. The rational is to match resource requirements for conservation programs. In the minds of utilities and legislators this would make it easier to promote efficiency. Distributed resources is likely to be included in a robust plan.

Comment: What scale you mean for the IRP? IRP is the reason for why we have the crisis. Collectively the market could supply. Answer: The plan is not considered region wide. Implement IRP region wide.

(57 - Set B) USE MARKET TECHNIQUES SUCH AS "REGIONAL BRANDING" TO CREATE AND SUSTAIN A POLITICAL AND ECONOMIC REGIONAL IDENTITY

A: This is multi-dimensional. Assumes there is no regional or economic entity, assumes that regional branding is tool to create, that assumes that by doing this there is stability and force that can be created on decisions like allocation of resources. Water is a federal resource. Reapportionment will cause a continued shift in congressional growth in places like California larger political power, some can say you give up and we gain. Cannot politically met that with 6 senators from region , can reach it if you extend beyond region from those who will but from it. Regional branding is a away to do that.

(58 - Set B) LAUNCH ESSAY AND POSTER DESIGN CONTESTS FOR ENERGY EFFICIENCY THEMES

This responds to item 69 on the plausibility map. Support the ethos of sustainability. Use themes such as "Do I need 100% reliable energy source all the time…"? Create and center the dialogue.

(59 - Set B) INCLUDE ENERGY EFFICIENCY AND SUSTAINABILITY TRACHKS THROUGHOUT THE EDUCATION SYSTEM INCLUDING SPONSORING CURRICULUM AND FACULTY

A: Also element of need to have sustainability faculty that is endowed to get message delivered to up coming practicing professionals.

Q: What does sustainability mean.

(60 - Set B) ESTABLISH A CLEAR AND SUBSTANTIAL ROLE FOR BPA IN INVESTING IN ENERGY EFFICIENCY

Review item 32 for explanation.

(61 - Set B) ENCOURAGE STATE REGULATORS TO INTRODUCE INCENTIVES AND PENALITIES FOR "CONSUMERS" TO KEEP CONSUMPTION WITHIN PREDETERMINED BOUNDS

A: The dumb meter scenario. Theory is that regulators could get messages to customers by setting a boundary that a house consumption. If you go above penalties kick in if you go below incentives do.

C: This is going on in Bay area.

C: Baseline rates with a second tier. A form of tiered rates for residential. Gov. Davis ordered state paid rebates for those who cut utility rates below last year.

(62 - Set B) RAISE THE BAR ON STATE ENERGY CODES

Self explanatory.

(63 - Set B) SECURE A HIGH PROFILE SPOKESPERSON FOR ENERGY EFFICIENCY

A: Clear

(delete) = Decision was made to delete idea

Table 2: Clarification of Action Options

(64 - Set B) DEVELOP A REGIONAL ENERGY EFFICIENCY / GREEN PRODUCT CERTIFICATION PROGRAM (USING JOHN PYRCH'S LOGO)

More than a labeling program.

Comment: Identify high energy cost? It could, but my intent is to focus on a certificate program.

Comment: Europe, Australia, and some other location have the most successful program which came from manufacturers that were willing to get rid of their "one star" rating. The ones that reached the 5 star level asked the government to raise the bar so that they could distinguish themselves from the competitors.

(65 - Set B) PROVIDE INCENTIVES FOR SMART ENERGY SYSTEMS WITH ZERO ENERGY CAPABILITY RESEARCH AND DEVELOPMENT AND DEMOSTRATION

A: Appliances use energy while off. Need to provide incentives. If there were R &D funds available on how to turn things off it would be very useful.

(66 - Set B) DEVELOP MARKET BASED APPROACHES TO INCORPORATING EXTERNALITY COST INTO PRICES

Basically talking about funding ways to get the full cost of energy into the prices. Such as the SO2 or NOX programs in California.

(67 - Set B) IMPLEMENT ENERGY EFFICIENCY CODE IN IDAHO

A: Self explanatory. Someone argued that coeds are not way to go. Effort may be futile.

(68 - Set B) RESEARCH AND DEVELOP EFFICIENT PRODUCTS AND SERVICES TAILORED TO THE COMPACT URBAN FORM

Trying to respond to the influence map. People moving to more compact centers, people want to be where things happen. We are seeing new architecture forms to respond to that, merging commercial and residential customers on the same building. We need to develop energy efficiency systems for this types of building.

(69 - Set B) CONVENE ENERGY EFFICIENCY ROUNDTABLE FOR MAJOR ENERGY USING INDUSTRIES TO AGREE ON ENERGY EFFICIENCY GOALS AND JOINT PROJECTS (USE GOVENORS AND OTHERS TO CONVENE CEOs & CFOs)

A: clear

(70 - Set B) PROMOTE THE UNDERSTANDING AND IMPLEMENTATION OF INTEGRATED DESIGN TO THE DESIGN PROFESSION

Self explanatory.

(71 - Set B) CONDUCT R&D ON A NEW GENERATION OF RETROFIT TECHNOLOGIES AND STIMULATE A REVITALIZED COMPETENT RETROFIT MARKET

A: Effort on building haven't looked at retrofit and have ignored technology. Need to put more effort into retrofit. Need competent retrofit market. Small business that disinfect ducts. Ned to think about who would provide decent retrofit market. Consumers don't have knowledgebase to serve consumers.

(72 - Set B) EDUCATE THE REGION TO THE ECONOMIC / SUSTAINABILITY BENEFITS THAT COME FROM EFFICIENCY AND EXPORT EQUIPMENT AND STANDARDS FOR THAT GLOBALLY

This probably self-explanatory.

(delete) = Decision was made to delete idea

Table 2: Clarification of Action Options

(73 - Set B) DISSEMINATE INFORMATION ON CONSERVATIO NPOTENTIAL AND THEIR DELIVERY MECHANISM

A: Given demand, we need to get there somehow. Question is how much conservation potential exists.

(74 - Set B) PROMOTE LIGHT RAIL TRANSPORTATION SYSTEMS AND INTER CITY RAIL AS WELL

There is a place for this development on corridors. The inter city rail is very important as well.

(75 - Set B) USE THE CURRENT CRISIS TO RAISE BPA RATES BY A FIXED AMOUNT FOR A FIXED TIME TO PAY OFF BPA DEBT AND USE THAT TO FUND EFFICIENCY RENEWABLE PROJECTS

A: We spread rates out to keep prices low in region like a 60yr home mortgage.

Q: Don't understand conservation linkage here. If you drop prices you drop incentive to conserve.

A: Option of lowering rates or making a policy decision.

(76 - Set B) R&D WITH REGIONAL RESOURCES TO DEVELOP A NEW GENERATION OF CLOTHING THAT ENABLE A WIDENING OF THE HUMAN COMFORT BAND

Self explanatory.

(77 - Set B) ASSESS THE NEW GENERATION OF NUCLEAR POWER PLANTS

Some countries use a lot of nuclear power for energy. Isn't it worth NEEAs time to fund some form of assessment of what this type of industry would look like in the future with the new technology?

Comment: Is the Pebble Bed type of reactor included on this? Answer: Yes.

(78 - Set B) OPPOSE ALL LIGHT RAIL SYSTEMS

The problem of this system, they are high price amusement rides. It is not an energy efficiency strategy. It has been said that BART would have to operate 555 in order to earn back the energy utilized for its construction. Although it is not light rail system.

(79 - Set B) ENHANCE THE TRAINING EDUCATION OPPORTUNITIES FOR DSM PROFESSIONALS

A: Infrastructure has fallen apart, need to enhance training/education opportunities for DSM professionals.

(80 - Set B) ESTABLISH A REGIONAL BULK PURCHASING FOR COMMONLY USED ECMs AND RENEWABLE HARDWARE

Leverage our buying power by schools or state government for ECMs. Look for those types of opportunity every time we can.

Comment: there is in fact such a buying coop for solar energy.

(81 - Set B) ENCOURAGE CONSUMERS TO MOBILIZE TO ATTRACT ENERGY EFFICIENT INDUSTRY TO THE REGION

A: This is a different approach. Key word: Mobilize. Mobilize consumers to attract energy efficient industry. Treat consumers like more than a purchasing factor or subject to regulation. Bring them to table and enlarge number of player for the benefit to region.

(82 - Set B) ENCOURAGE THE NW PLANNING POWER COUNCIL TO REINVIGORATE THE LONG RANGE PLANNING ESPECIALLY CONSERVATION POTENTIAL ASSESSMENT

Review item 32 for clarification.

(83 - Set B) DEVELOP NEW WAYS TO USE THE INTERNET TO SELL ENERGY EFFICIENCY PRODUCTS

A: clear

(delete) = Decision was made to delete idea

Table 2: Clarification of Action Options

(84 - Set B) DEVELOP WEB-BASED FEEDBACK TOOLS FOR HOMES AND BUSINESSES THAT REPORT INSTANTANEOUS ENERGY USE AND COST RATHER THAN RELYING ONLY ON MONTHLY AFTER THE FACT UTILITY BILLS

The smart metering is great idea on socket by socket basis. But there is an intermediate step to reach there that could be made available now. Information on a daily basis, on the web, about house consumption.

Comment: We tried to do that on PG&E. For two years it was ran, people were interested in the first 45 minutes and then they were tired. But it didn't induce changes in consumer behavior.

(85 - Set B) EMPHASIZE THAT COMPLEX RATE DESIGNS WILL NOT MOTIVATE ENERGY EFFICIENCY IN THE MANT MANY CASES IN WHICH THE BILL PAYER IS NOT THE DECISION THE MAKER

A: Sarah's

(86 - Set B) SUPPORT THE DEPARTURE OF ALUMINUM PRODUCTION IN THE REGION WHICH FAILS TO MEET STANDARDS FOR WORKER AND ENVIRONMENTAL PROTECTION AND SELF RELIANCE

Review item 32 for clarification.

(87 - Set B) DEVELOP A STRATEGY THAT WILL ADDRESS THE NEEDS OF LOW / FIXED INCOME CITIZENS IN A HIGH ENERGY COST ENVIRONMENT

Review item 32 for clarification.

A: clear

(88 - Set B) ENCHANCE UNDERSTANDING OF CONSUMER MOTIVATION AND BEHAVIOR AND INCORPORATE FINDINGS INTO PROGRAM DESIGN

Covered by Brian's. Delete.

(89 - Set B) DEVELOP WEB-BASED RETAIL POWER AUCTION DESIGNED TO PROVIDE PRICE TRANSPARENCY FOR FIRM, NONFIRM, PEAK, AND OFF PEAK POWER PURCHASES

A: A good tool to buy power, get immediate price transparency. NEEI should consider this as regional way to buy power. Provide price options for commodity price. Add distribution of other cost so consumer can see price immediately.

(90 - Set B) CREATE A FINANCIAL HEDGE FOR THE REGION WITH ENERGY EFFICIENCY AND RENEWABLES AS THE BASIS FOR HEDGING

Hopefully this is clear. Not sure on the implementation of this.

(91 – Set B) DEPLOY US NUCLEAR NAVY TO WEST COAST PORTS PLUG SHIPS INTO THE GRID FOR IMMEDIATE MARKET TRANSFORMATION TO DISTRIBUTE GENERATION

(delete) = Decision was made to delete idea

APPENDIX G

Bibliography Relevant to the Methodology

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