

Regional Technical Forum Meeting Notes

September 20, 2005

DRAFT

1. Greetings and Introductions.

Tom Eckman welcomed everyone to today's meeting, held September 20, 2005 at the Northwest Power Planning and Conservation Council's Portland offices. The following is a summary (not a verbatim transcript) of the topics discussed and decisions made at this meeting. Anyone with comments or questions about these notes should contact Eckman at 503/222-5161.

The notes from the RTF's June 7 meeting were approved with a few minor changes.

2. Proposed PTCS Equivalent Heat Pump Commissioning Protocol.

Bob Davis and Bruce Manclark led this presentation. Davis noted that, at the RTF's June meeting, the group discussed some of the issues surrounding heat pump service checks in the field. At that meeting Davis had proposed at least the beginnings of a revised PTCS commissioning procedure. Davis said that today's presentation is intended to provide the RTF with a summary of the revised procedure's salient features primarily as they apply to new installations. Davis also noted that a subcommittee of the RTF met in late August develop recommendations for revising the PTCS heat pump installation specifications as well as to develop a proposed PTCS whole-house weatherization specifications which will be addressed later in today's meeting.

Davis noted that one of the major findings of the RTF's heat pump research is that existing commissioning procedures are only getting the region part of what it wants to get from heat pumps. He then described the pros and cons of the RTF's current PTCS heat pump commissioning procedures, focusing primarily on Proctor Engineering's CheckME!® program as follows:

- Pros
 - Based on solid science, primarily for cooling
 - Provides documentation (electronic transfer to Proctor Engineering)
 - Homeowner gets Oregon tax credit paperwork and certificate)
 - Brevity
 - Technical backup is available during call
- Cons
 - Savings from refrigerant charge/airflow commissioning are in the range of 3-5% for heating, not at 10-12% as expected for cooling
 - Controls commissioning measures which appear to have greater impact on savings are not included in current CheckME!® protocol

- Procedure cannot be used when temperatures fall below 55 F
- No in-field follow-up by technicians after installation service

Davis then outlined the proposed new procedure for new installations that would include the following:

- Weigh-in charge which can be done all year to ensure that refrigerant charge is adjusted to account for addition refrigerant line lengths
- Require a temperature-split check in heating mode
- Require an airflow test using TrueFlow® or equivalent measuring device
- Require a controls checkout (exact procedure still under development)
- Require in-person follow-up on some percent of units

Davis then touched on the following important details:

- Procedure primarily intended for new installs (larger incentives/credits on the line)
- Installations often involve several workers (refrigeration technician, duct technician, service technician)
- In-field Quality Control assumes that someone qualified can be found to do the work
- Modifying existing commissioning protocols (e.g., CheckME!®) to include these requirements or inventing a new process costs will require funding.

Davis drew the group's attention to the documents he had provided for today's meeting, a September 12 memo summarizing the discussion at the August 24 heat pump meeting and discussion, and a document titled "Concordance for Alternative Method of Determining New Heat Pump Performance," dated September 8. He also discussed the proposed new checkout form for installers. He noted that pieces of the latter list could be incorporated into existing checkout procedures. This proposed procedure is focused on heating, he said; it also provides verification of airflow and controls accuracy. There is probably some further development needed to ensure that this works properly, he added.

This is basically something I've been working on in my spare time, which is why it isn't completely fleshed out, added Davis. I know that at the June meeting, the RTF voted to adopt some version of this as an approved procedure, but we should probably have some discussion of how it would actually work, Davis said.

Bruce Manclark noted that the TrueFlow® measurement could be performed by the utility, as long as such a test was required in the checkout list. We should be able to compile a simple database if the technicians could fax the sheet to an 800 number, he said. The sheet would then be entered into the database by a data entry person, Manclark said. The QA shouldn't be looked at as purely punitive, he added; every time we install a heat pump, we find out something new. the question is, who would pay for this? We estimate that it would cost about \$75,000 to look at 1,000 heat pumps per year. Manclark noted that, since January 2004, more than 10,000 heat pumps have been sold in the state of Oregon alone; if we can come up with a system that encourages installers to do things right, that would be of obvious value for the region. The question, again, is who would be willing to pay for compiling and maintaining the associated database.

The group offered a variety of questions and comments, most focused on Davis' proposed checkout form. Steve Cowell raised a concern based on his firm's evaluation of an

East Coast “paper-based” quality control program that was intended to ensure proper charge and airflow. Cowell stated that what they found was that a “paper-based” system, unless there is near-perfect uniformity in how the testing is done and the paperwork filled out, the failure rate is distressingly high. We have gone to more of a CheckMe!® approach, because of those difficulties with the paper-based system, he said. That isn’t to say a paper-based system couldn’t work, but some fairly rigid technical review of the paperwork is needed. Cost-effectiveness is a separate issue, he added.

Our interest is in having this be a widespread, easily-used procedure, said Ken Keating – the more systems that are installed according to a precise set of technical specifications, the better it is for the region. Requiring a second technician to visit is a huge burden on the consumer, he said; the cost of that second visit would be high. The cost of PTCS certification isn’t that high; most of the cost is in the tech time. I would encourage you to keep this process as simple as possible, said Keating.

The form itself could certainly be made more user-friendly, but my concern is that the controls component has historically been an afterthought, Davis replied. We feel that’s a very important step, which should probably be at the top of the page. It’s something that isn’t addressed by any of the procedures we currently have – we do want to keep things simple, but we also want to be sure that we get all of the information we need.

We now have three choices – CheckMe!®, the ACRX® hand tool, and this proposed procedure, observed Ken Eklund. The fourth choice would be anything authorized by the RTF. That gives utilities a bigger palette, in their installation and documentation procedures, which is beneficial. I think we’ll be able to come up with better systems as we move forward, but I would hate to see a centralized database set up regionally. In Idaho, we’re encouraging utilities with heat pump programs to put in a QA program, he said. As the amendment is written, the certifying agency can then take a look at those records as needed. This will at least provide a coherent, consistent way to acquire the data, Eklund said.

Another participant noted that, based on the Purdue data, it makes sense to focus more closely on airflow and controls, rather than refrigerant charge. I would add that \$75 per system is \$25 more than Proctor is charging us now, he added.

We’re entering a rulemaking procedure in three weeks, said Charlie Stephens; we’re going to do something with these tax credits, and we need to start thinking about what that’s going to be. I am very concerned that we have a procedure that can be done in the winter, about controls, and about outside static pressure, he said. I should also note that we are also proposing, as of April 1, to go to HSPF and EER – SEER will be gone once that change is made. I should also add that I’ve gotten some early manufacturer data on the 2006 systems, and there will likely be one line at the top of the list that will be an electronically-controlled “supersystem.” All of the other systems seem designed to just meet or slightly exceed the federal standards, said Stephens. What that tells me is that the complexity of most of the systems is going to be less than I thought. With that in mind, controls are going to be very important, and I want to be sure whatever we adopt addresses that issue.

The discussion continued in this vein for some minutes. Ultimately, Eckman observed that one thing there appears to be consensus on is that Davis’ checkout form needs to be reformatted and prioritized. The real question is how the QC process happens; since three of the four states have PTCS equivalency in place, there may be a way to build on that

infrastructure. It sounds as though we'll need an 800 number, as well as a data entry person to enter the information into the database, Eckman said.

I think the main thing we need to decide, as a group, is what minimum requirements have to be met in order to satisfy our needs, Eckman said. Stephens suggested that the blocks on the checkout form should be numbered or lettered, in order to allow individual utilities to clearly specify what data fields are required to satisfy their requirements.

After a few minutes of further discussion, Eckman noted that, based on what he has heard today, some of the blocks are "shoulds" and some are "shalls;" that the form needs to be prioritized, and that Davis will revise the form based on the comments received at today's meeting and bring it back to the RTF's October meeting so that the group has a clear understanding of what it is voting on. I would encourage you to get the PTCS specs revised as soon as possible, said Keating, because our plan is to start signing contracts in October. Understood, Eckman replied. Could we be sure we have the specs on the agenda for the next meeting? Mark Johnson asked. That's the plan, Eckman replied.

Again, I will ask Bob to pursue this for our next meeting, and ask Bruce, Adam Hadley, Ken Eklund, Jeff Harris and anyone else who wishes to do so to review Bob's work prior to the October meeting, Eckman said. It was so agreed.

3. Request to Add "Oregon Offshore Wave Energy Research and Demonstration Park" Administered by the Oregon State University School of Electrical Engineering and Computer Science to the List of Pre-Approved Renewable Resource Research and Demonstration Projects.

Jeff King, Dr. Annette von Jouanne, and Kay Moxness led this presentation, titled "The Promise of Wave Power." King noted that this is somewhat unusual for the RTF, because it is a renewables item. The proposal, from Central Lincoln PUD, is to add this research project to the C&RD manual. The selected site is just off the Central Lincoln service area, so we have decided to contribute some money to the development effort, said Moxness. We would like to encourage other utilities to contribute as well, she said. Eckman noted that the proposal is available via hot-link from today's agenda on the RTF homepage.

The presenters touched on the following topics:

- Port Liaison Project (PLP) Partnership: OSU is working with Oregon Sea Grant and the PLP to initially identify optimum wave park sites, provide technical expertise on buoy tethers, bottom anchors, mooring, maintenance, equipment etc.; a variety of commercial fishing industry representatives are cooperating.
- Why ocean wave energy?
- Introduction to wave energy potential – it is estimated that, if just 0.2% of the ocean's untapped energy could be harnessed, it would provide power sufficient for the entire world. Wave energy harvested from about 10 square miles of ocean off the Oregon Coast could provide enough electricity to power the entire state. Compared to other renewables, ocean energy offers higher energy density, availability and predictability. OSU is an excellent location to conduct ocean wave energy extraction research.
- OSU conceptual wave park (illustration)
- History of wave energy at OSU – dates back to 2000; three hardware prototypes designed, analyzed, developed and tested, with a fourth and fifth prototype under

- development.
- OSU strategic facilities to advance wave energy – include the motor systems Resource facility (MSRF) and the O.H. Hinsdale Wave Research Lab (HWRL), a world-class wave research facility.
 - OSU – key location for ocean wave energy research – the capabilities of the Motor Systems Resource Facility and the O.H. Hinsdale Wave Research Lab
 - OSU research and development in wave energy
 - Power from ocean waves – available resource off the Oregon coast (map and graph of data from data buoys)
 - OSU's planned devices and goals – current technology focus is the direct-drive buoy; goals include: simplify and advance existing buoy technologies; avoid additional stages such as hydraulic and pneumatic-based units, and instead use direct-drive roller, ball, helical magnetic screw concepts and linear PM generator systems; pursue optimum topologies
 - OSU's Novel direct-drive buoy approaches – permanent magnet linear generator, permanent magnet rack and pinion drive; contactless force transmission (patents purchased by Columbia Power Technologies)
 - Linear generator buoy with demo/test stand (photograph)
 - OSU's contactless force transmission buoy (photographs)
 - OSU's permanent magnet rack and pinion drive – installed on sea floor; sealed unit; buoy drives generator via a line to the surface; translator returned by either spring or gravity.
 - OSU's permanent magnet rack and pinion drive – dual PM rotors, translator and gear box, each separately sealed units; no moving seals; reduced component wear
 - Fluid structure interaction (illustration)
 - OSU's wave energy goals and ongoing efforts – establish US Ocean Wave Energy Research, Development and Demonstration Center; enable streamlined research to pursue optimum topologies, collaboration with the European Center; aid industry and government in comparing competing technologies; accelerate scaling devices to larger and smaller applications; pursuing a wide range of funding options; developing a road map to enable ocean testing and demonstration; organizational model: DOE/NREL Center.
 - Wave energy pilot plant in Oregon: suggested working diagram (flow chart)
 - Wave energy RD&D facility development roadmap – in-process items and proposed future activities

Von Jouanne noted that, ideally, the \$5 million in initial startup funding needed to get the Reedsport wave energy demonstration park and national wave energy research center off the ground would come from the U.S. Department of Energy. She said that funding for the center was a late addition to the recent Congressional energy bill, and reiterated that OSU is pursuing a variety of other funding sources.

The oceans are quite stressed – can you expand a bit on your environmental assessment? Stephens asked. We would monitor what is happening with the sea life, ocean temperatures, the whale migration, Von Jouanne replied – we know the devices would need to be shielded, to avoid electromagnetic impacts to the ocean. We need more information on how the electromagnetic fields affect sea life; one thing research has shown, for example, is that fish are attracted to electromagnetic fields. We also need to think about how the migratory patterns of whales might be affected. One thing we've found, in talking to fishermen, is that there are kelp beds up to an acre in size that drift through the water off the coast – that is R&D that needs to

be done, but not by electrical engineers. She noted that Hatfield Marine Science Center is helping with this biological assessment effort.

What about the impacts of a subsurface 12 kV line? asked another participant. It's a matter of shielding, von Jouanne replied – there is a lot of underwater transmission that is already being done around the world, and we can learn from those projects.

Eugene Rosolie moved that the RTF recommend to BPA that they make the Oregon Offshore Wave Energy Research and Demonstration Park pre-approved on the renewable research list. This motion was seconded by Jay Himlie. King said that, from the perspective of Council staff, while this may sound like a fringe project to some, the Council has been looking at this technology since 1991. The technology has now narrowed down to just a couple of systems that show a great deal of promise, which is encouraging. He noted that the Pacific Northwest shows tremendous wave energy potential, with the possibility of several thousand megawatts of generation from a very limited geographic area. Eklund noted that, with natural gas trading at \$9.72 per mbtu, the region needs to explore every possible alternative energy source.

After a few minutes of additional discussion, Roslie's motion carried unanimously.

4. *NWBEST Construction Standards Project Overview.*

Shelly Strand and David Cohan led this presentation, titled "Best of Region and Northwest Benchmark Standard (NWBEST). This is merely an update and an information item, Eckamn noted.

Strand touched on the following topics:

- Background – general climate: efforts by utilities and stakeholders have increasingly moved to regional viewpoints over the past 10 years; interest has increased in standardizing both conservation programs and energy codes at the national level. The RTF has had discussions regarding standards for Power Plan measures.
- High-level project goals include: develop a standardized framework for energy code language that can accommodate regional differences; provide model language that reflects the most efficient approach to a given component or practice; develop a planning tool to guide program targeting and development, which can be periodically updated as technologies and practices improve.
- This project is NOT: an attempt to force any state or jurisdiction to adopt any particular code language; an ecoterrorist plot to incorporate national codes into our pristine Northwest territory; an ecoterrorist plot to kill any attempt to incorporate national codes into our pristine Northwest territory.
- Specific project goals include: Phase I: develop "Best of Region" energy code language to serve as the evaluation baseline. This standard will capture the most stringent regional requirements for each component or practice. Phase II: develop Northwest Benchmark Energy Standards (NWBEST) that extends the Best of Region to achieve 15% more cost-effective efficiency through new approaches or more stringent requirements.
- Technical Working Group – first step: develop a Technical Working Group (TWG) of code officials and interested professionals (Alliance). Work with the TWG to identify and standardize the most efficient existing provisions. Work the the TWG to identify potential areas for improvement.
- Analysis: provide model code language to represent the existing Best of Region

provisions; conduct high-level cost/benefit screen for measures identified for possible inclusion in the NWBEST; conduct a more rigorous cost/benefit analysis for a small number of (mostly emerging) measures; develop language that could be incorporated into future energy codes if desired.

- Results: “Best of Region” standard; NWBEST standard; method of updating NWBEST as technologies and practices improve over time.
- Benefits include: language that unifies disparate codes currently enforced and moves the region forward; a set of measures that have been reviewed by a range of interested professionals for feasibility, applicability, cost-effectiveness, implications etc.; a broad planning tool applicable to the development of state, local, regional and national code adoption strategies as well as voluntary programs.

If you are interested, and would like to participate in this process, or would like to submit comments, please email me at shelly@ecotope.com, Strand said. What is the timeline for delivering both the baseline product and the NWBEST? Eckman asked. The Best of the Region product will be completed within a couple of weeks, Strand replied; we should have the NWBEST guidelines done before Thanksgiving.

The region, in my opinion, has been extremely effective in impacting the national energy code – I would hope that the region doesn’t back away from that activism, said another participant. One of our goals is certainly to enable the Northwest to develop unified language with respect to certain code provisions, replied David Cohan. I would encourage everyone to look at the codes, because there are literally hundreds of provisions, noted Charlie Grist. I think that getting this group together and looking at those collectively will be a very useful exercise, he added. Cohan noted that it would also be useful for those with specific interests – for example, lighting measures – to look at and comment on only those areas they are interested in – in other words, it doesn’t have to be a daunting process, he said.

5. Request to Add “Non-Residential Energy Code Compliance Support” as a Measure Eligible for Rate Credit Under Bonneville’s Post-FY’06 Conservation Rate Credit Program.

Keith Lockhart, David Harris and Jack Foster led this presentation, titled “Springfield Utility Board Non-Residential Energy Code Compliance Program.” Among their major topics:

- History: Energy and Conservation Services has provided energy code compliance as a service to the City of Springfield since 1993; SUB submitted an RD&D proposal to review and inspect for non-residential energy code compliance; packing the torch for SUB (Bruce Cody); on December 20, 2001, the proposal was accepted as a qualified RD&D measure eligible for C&RD credit.
- Four program objectives: achieve energy conservation through code compliance; evaluate the level of code compliance and energy savings; personal interaction; capture lost opportunities and energy savings
- Process of energy code compliance – plan review process, site inspection process (flow charts)
- Results – status of forms submitted, failed plan reviews, failed inspections, failed inspections for new construction, failed inspections for remodel (graphs)

Lockhart then offered the following summary of utility support for energy code enforcement:

- Dedication to continue support for a non-residential energy code compliance program at SUB
- Non-residential energy code compliance is an unfunded mandate
- SUB cannot do it alone!

He then outlined the following Springfield Utility Board proposal to the RTF:

- Recognition of non-residential code enforcement as an eligible conservation measure
- RTF recommends that BPA allow utilities to claim costs associated with funding code compliance at the local level which would permit SUB to continue to perform plan review and site inspections to verify code compliance.

It was noted that, when codes change, the number of failed inspections tends to increase; without the type of code compliance oversight provided by SUB, the number of out-of-compliance projects would be much higher.

In response to a question, Harris said SUB does do physical re-inspections of failures; more than 60 percent of the building inspected by SUB fail at least one inspection. It was noted that the majority of the failures occur in the lighting inspections; that is where the majority of the energy savings are found, so that is very important, in terms of regional energy savings verification.

It would be helpful if you could show us some data as to what you found in the plan review stage vs. what you found during your field inspections, observed one participant. We have some of that data, Harris replied. Any idea how much of this would be delivered by the market, if there was no code? another participant asked. You would probably lose most of the savings, Foster replied. Go to some place that doesn't have a code, like Mississippi, and you'll have your answer, Grist observed.

Jim Lazar observed that, given the fact that building permit fees are calculated based on the cost of a given project, and that cost is driven by the complexity of the systems installed, it isn't accurate to call the code compliance effort an "unfunded mandate." Roslie disagreed, noting that most enforcement programs around the state are under-funded and under-staffed; he added that many jurisdictions use building permit fees as a cash cow to fund other, more-essential services, such as public safety.

Lazar moved that the RTF recognize non-residential code enforcement as an eligible conservation measure, and that BPA allow utilities to claim the costs associated with funding code compliance at the local level to permit utilities to continue to perform plan review and site inspections to verify code compliance. He observed that, in his view, there is no single investment that even comes close, in terms of cost-effective conservation. This motion was seconded.

What will the rate credit be? Ulrike asked. The current assumption is dollar-for-dollar reimbursement, Eckman replied. My problem is that we don't have a sense of the actual cost-effectiveness of this measure, said Roslie; we need some sense of that before we approve this measure. I can pull out the relevant section of the Washington study that backs my assertion that this is the most cost-effective energy savings measure we can implement, Lazar replied.

Stephens observed that, while the RTF has heard a great deal about increased code

requirements, without a rigorous inspection program, such code changes are meaningless. State and local jurisdictions have no incentive to verify energy savings, he said; on the other hand, utilities have a great deal of motivation to verify savings. Keating said that, in his view, this is an extremely complex issue, and it is premature to bring it to a vote. Lazar disagreed, arguing that, in his view, this type of inspection/verification program should be required of any entity seeking C&RD credit. Eklund noted that all that will happen, if the motion carries, is that the RTF will recommend that BPA entertain proposals for savings inspection and verification programs like this one. That's correct – it would simply be on the list of eligible measures, said Eckman.

Ulrike suggested that the motion be modified to include a requirement that the participating utilities provide written verification of savings achieved to BPA. Rosolie offered a formal amendment – we recommend it as an eligible protocol-based measure, meaning that someone would have to fill out the proper forms, measure and verify savings. My preference would be to restrict the RTF's input to deciding whether or not this should be an eligible measure, Eckman said – obviously we can't say it should be, say, \$1.36 per square foot.

Ultimately, after a few minutes of additional discussion, Lazar's motion, as amended by Rosolie, carried unanimously.

6. Proposed Revision to the Minimum Efficiency Standards Windows to Class 30 for Residential Weatherization and New Construction Programs.

Eckman led this presentation, touching on the following topics:

- Background – why change? Original (1983) Council MCS called for adoption of Class 30 windows in PNW energy codes; the current minimum efficiency standard for residential retrofit and new construction programs is Energy Star (class 35). Alliance program evaluation revealed that 80% of windows sold in the PNW meet Energy Star (Class 35); energy codes in Zone 2 (E. WA, Idaho and Montana) require Class 35 windows.
- Availability of Class 30 windows (table)
- Characteristics of Class 30 windows (table)
- Estimated savings over Energy Star (Class 35) windows (kWh/sqft-glass/yr) – table
- Regional benefit/cost ratio for Class 30 windows @ average cost = 1.36 sq.ft (table)
- Potential BPA Post FY'06 credit/reimbursement level @ \$0.30 kWh/yr (\$sqft-glass) – table.

Eckman then outlined the following proposed recommendation:

- RTF recommends that, commencing January 2006, or as soon as practicable thereafter, PNW residential weatherization and new construction programs adopt minimum efficiency standards for windows of Class 30 (U-factor 30)
- May be satisfied by achieving an area weighted average of Class 30.

The group offered a few technical questions and comments; in response to one question; Eckman noted that this revision would apply to both new construction and retrofits. Do we calculate this, from an incentive standpoint, as a weighted average? Stephens asked. My recommendation is that it be an area weighted average U-value for all of the glazing in the house, Eckman replied. Did you look at solar heat gain coefficient (SHGC) values? another participant asked. No, Eckman replied.

Lazar said he does not necessarily agree with Eckman on this issue; he noted that the Milgard website shows a boatload of product at Class 31. Frankly, he said, I think we would be making this a lot simpler for the utilities if we set the threshold at Class 31, rather than Class 30, Lazar said. Craig Conner, who had developed the data on the number of windows that were Class 30 or better, indicated that there was no clear “break-point” in the U-factors listed in the NFRC data. He said he believed that if the RTF recommended Class 30 as the minimum acceptable efficiency level, manufacturer’s would tweak their existing products to meet the class 30 requirements.

Himlie moved that the RTF endorse Eckman’s proposed recommendation, the motion was seconded by Stephens. Lazar moved that Class 30 be amended to Class 31; the motion was seconded by Eklund. This amended motion failed. Returning to the original motion, this motion passed; the RTF recommended that the minimum efficiency standard for windows be set at Class 30.

7. Proposed Deemed Savings for Irrigation Sprinkler Nozzle and Gasket Replacements.

Eckman indicated that he had received a proposal from Bonneville staff regarding irrigation sprinkler nozzle and gasket replacements for existing systems. He distributed a brief written description of the BPA proposal. The assumption underlying this proposal is, if you change out the nozzle and gasket on existing systems, you get marginally better water coverage and and improve pump efficiency, Eckman explained. He put up a table demonstrating these kWh/hr savings per pump, and briefly explained the assumptions underlying his calculations – vertical lift, nozzles per pivot etc. And the recommendation from the RTF to BPA would be that this be made a deemed value? Rosolie asked. Correct, Eckman replied.

After a brief discussion, Rosloie moved that BPA adopt this as a deemed measure with the savings shown in spreadsheet prepared by Eckman; Stephens seconded this motion, and it was unanimously approved.

8. Proposed Northwest Program Equivalent to Home Performance with Energy Star.

Eckman began by noting that over the past several years, the region has operated separate weatherization, air sealing, and duct sealing programs as well as a heat pump installation and commissioning program. What we have before us is a proposal to consolidate all of those bits and pieces into a whole-house program, he said. The Energy Trust of Oregon, Conservation Services Group and a “cast of thousands” have been working diligently to put this together, Eckman said; I’ve ask Bruce Manclark, Tom Broadbeck and Jackie Meyer to lead this presentation. Prior to their presentation, Rosolie asked, “In the end, will we have a whole-house program that is cost-effective, although there may be some measures in the package that are not cost-effective?” Manclark replied, that we’re trying to come to agreement on a set of specifications, and than let the implementing entities decide what is cost-effective as well as which measures should receive incentives. However, he continued, I should note that every one of these measures included in the “whole-house” package has been recommended to BPA as eligible for credit/reimbursement under the current C&RD program.

The presenters touched on the following topics:

- The purpose: to allow utilities, WX agencies and the Energy Trust to offer whole-house weatherization programs under a consistent set of specifications. This avoids marketplace confusion, centralizes and controls training, and, by bringing this under the RTF, allows local control over specifications
- This program only affects utilities wishing to undertake a Performance tested house program; it is completely voluntary. Utilities (or other program operators) that wish to continue an “ala carte” set of programs are free to do so.
- The basics: incorporates what weatherization programs have learned in the past 25 years; treats the whole house with equal emphasis on health and safety, building durability and comfort with energy savings.
 - Technicians must be certified.
 - Programs may choose to have WX companies accredited.
- The specifics: combustion safety testing in all homes that have combustion appliances – worst-case depressurization testing; draft and spillage requirement; CO testing of all combustion appliances with maximum allowable limits. All homes will be blower-door tested. Duct leakage testing will be required on all homes with ducts in unconditioned spaces; plus shell measures and equipment measures.
- QA/QC: all diagnostic testing is performed pre- and post-work by technician on every house (blower door, duct leakage testing, combustion safety test). Quality assurance will be done by a third party in accordance with RTF rules.
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We’re already doing this in Idaho, Eklund observed – I’m just wondering how, if the RTF adopts this, it might affect our program. It won’t, unless you’re claiming credit from BPA, Manclark replied. I would prefer that this not become an exclusive RTF program, Eklund said. It would be in the public domain, although some of the training curricula might be copyrighted, was the reply. Eckman noted that all of the specifications adopted by the RTF are public domain so this should not be an issue.

The group offered a variety of concerns, questions and comments; Rosolie noted that, before he votes to approve this, he will need to see somewhat more detail. Stephens agreed, noting that the RTF is being asked to approve detailed specifications no one has actually seen. Manclark noted that the two specs that are radically different under this proposal are the combustion safety specs and the whole-house ventilation specs.

Eckman said that, as the PTCS equivalency specifications were being revised by the RTF, various proposals were given provisional approval in order to keep the effort moving forward. To the extent that there is agreement that this is a good direction in which to move forward, perhaps we could agree, conceptually, that the whole-house concept is a good concept, but that the actual specifications will need to be evaluated before they are approved. The big change is that we’re adding combustion testing, he noted; the duct sealing, air sealing and weatherization specs are pretty much the same; we’re also talking about heat pump specifications that are a work in progress. There is also the independent QC component, Eckman said. Stephens said he would be willing to endorse the concept that has been put forward today, with the understanding that the actual specifications will need to be reviewed in detail.

Ultimately, it was agreed that this is a concept the RTF would like to move forward with, but a more detailed review of the actual specifications will be needed before the RTF can fully endorse the whole-house program. Stephens moved that the RTF endorse the concept of the

whole-house approach to existing buildings, but hold off on approving the specifications until the RTF has had an opportunity to review them. This motion was seconded and unanimously approved. Manclark said he will provide both the specifications and a summary of the changes the RTF would be endorsing to the RTF membership prior to the next meeting of the group. It was agreed to revisit this topic at the October RTF meeting.

9. Next RTF Meeting Date.

The next meeting of the Regional Technical Forum was set for October 25, 2005. Meeting summary prepared by Jeff Kuechle, NWPPCC contractor.

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