

Building America Expert Meeting Report: Transitioning Traditional HVAC Contractors to Whole House Performance Contractors

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Contents

List of Figures	iv
List of Tables	v
Definitions.....	vi
Executive Summary	vii
1 Background on Transitioning Traditional HVAC Contractors to Whole House Performance Contractors	1
2 Meeting Logistics	2
2.1 Topic	2
2.2 Location and Time	2
2.3 Attendees.....	2
3 Meeting Objectives and Agenda	3
3.1 IBACOS’ Research Questions.....	3
3.2 Meeting Specific Objectives.....	3
3.3 Agenda	3
4 Presentation	4
5 Discussion.....	6
5.1 Transition Point Ratings	6
5.1.1 Business Planning/Process.....	6
5.1.2 Marketing/Customer Contact.....	9
5.1.3 Assessment.....	11
5.1.4 Sales	14
5.1.5 Contract Administration.....	17
5.1.6 Production.....	18
5.1.7 Customer Service	20
5.2 Information/Deliverable Structure	22
6 Conclusions and Next Steps	23
References.....	25
Appendix 1. Expert Meeting Presentation	26
Appendix 2. Full Value Ratings of Work Activities	27

List of Figures

Figure 1. Operational Profile Hierarchy	viii
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Unless otherwise noted, all figures were created by IBACOS.

List of Tables

Table 1. Expert Meeting Contributors/Listen-only Participants (*)	2
Table 2. Expert Meeting Agenda	3
Table 3. Typical High-Level Business Operations Profile or “Map” of Whole House Performance Contractor	5
Table 4. Business Planning/Process “Map”	7
Table 5. Relative Rating of the Work Activities of Business Planning/Process	8
Table 6. Marketing/Customer Contact “Map”	9
Table 7. Relative Rating of the Work Activities of Marketing/Customer Contact	11
Table 8. Assessment “Map”	12
Table 9. Relative Rating of the Work Activities of Assessment	13
Table 10. Sales “Map”	15
Table 11. Relative Rating of the Work Activities of Sales	16
Table 12. Contract Administration “Map”	17
Table 13. Relative Rating of the Work Activities of Contract Administration	18
Table 14. Production “Map”	19
Table 15. Relative Rating of the Work Activities of Production	20
Table 16. Customer Service “Map”	21
Table 17. Relative Rating of the Work Activities of Customer Service	22

Unless otherwise noted, all tables were created by IBACOS.

Definitions

NREL National Renewable Energy Laboratory

Executive Summary

IBACOS has embarked upon a research effort under the Building America Program to understand business impacts and change management strategies for HVAC companies. HVAC companies can implement these strategies in order to quickly transition from a “traditional” heating and cooling contractor to a service provider for whole house energy upgrade contracting. Due to HVAC service contracts, which allow repeat interaction with homeowners, HVAC companies are ideally positioned in the marketplace to resolve homeowner comfort issues through whole house energy upgrades.

There are essentially two primary ways to define the routes of transition for an HVAC contractor taking on whole house performance contracting:

1. Sub-contracting out the shell repair/upgrade work
2. Integrating the shell repair/upgrade work into their existing business.

IBACOS held an Expert Meeting on the topic of Transitioning Traditional HVAC Contractors to Whole House Performance Contractors on March 29, 2011 in San Francisco, CA.

The major objectives of the meeting were to:

Review and validate the general business models for traditional HVAC companies and whole house energy upgrade companies

Review preliminary findings on the differences between the structure of traditional HVAC Companies and whole house energy upgrade companies

Seek industry input on how to structure information so it is relevant and useful for traditional HVAC contractors who are transitioning to becoming whole house energy upgrade contractors

Seven industry experts identified by IBACOS participated in the session along with one representative from the National Renewable Energy Laboratory (NREL). The objective of the meeting was to validate the general operational profile of an integrated whole house performance contracting company and identify the most significant challenges facing a traditional HVAC contractor looking to transition to a whole house performance contractor.

To facilitate the discussion, IBACOS divided the business operations profile of a typical integrated whole house performance contracting company (one that performs both HVAC and shell repair/upgrade work) into seven Operational Areas with more detailed Business Functions and Work Activities falling under each high-level Operational Area. The expert panel was asked to review the operational profile or “map” of the Business Functions. The specific Work Activities within the Business Functions identified as potential transition barriers were rated by the group relative to the value in IBACOS creating guidance ensuring a successful transition and the relative difficulty in executing.

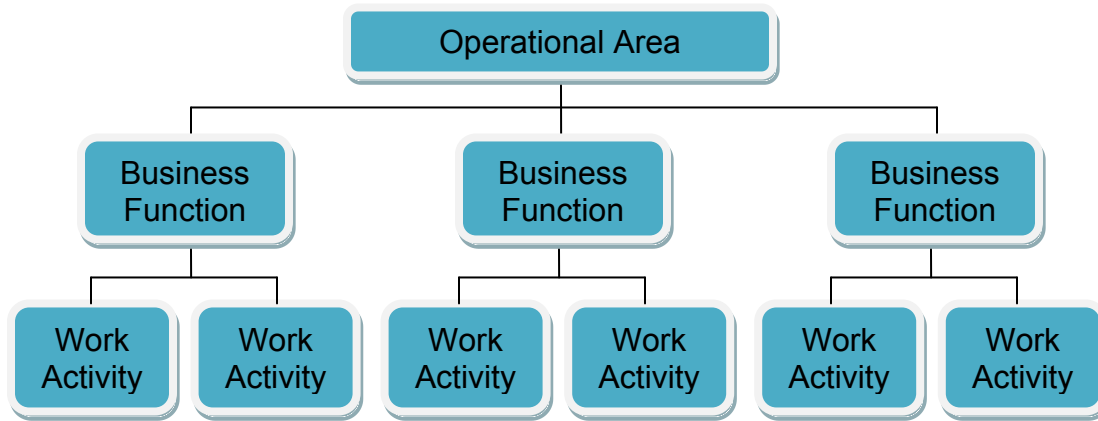


Figure 1. Operational Profile Hierarchy

Fifteen specific Work Activities were rated as highest in value in guidance to the transitioning contractor:

- Technical Training
- Equipment Requirements
- Vendor Relations
- Strategic Planning
- Customer Education Process
- Community Engagement
- Assessment Arrival Process
- On-Site Customer Interview
- Whole House Assessment
- Customer Presentation Package
- Assessment Report
- State or Local Program Reporting
- Work Scope/Procedures
- Job Completion Verification
- Sub-Contracting

Finally, the expert panel discussed the form and structure in which guidance to the industry would best serve traditional HVAC contractors interested in transitioning their business. The value of a white paper was called into question by the group as well as the value of webinars, if either are not too long in length. The use of the HVAC equipment distributor and/or manufacturer as a point of contact or outlet of information to the transitioning contractor was highlighted as a valuable resource. Keeping the information in short, understandable chunks was unanimously agreed upon. IBACOS will use the information collected at this meeting to refine our research plan and upcoming activities.

1 Background on Transitioning Traditional HVAC Contractors to Whole House Performance Contractors

IBACOS believes that an HVAC company is well-suited to take on the tasks of whole house energy upgrades and advance large scale energy efficiency in the residential market. Yet, HVAC companies need guidance on how to successfully transition from their traditional business strategy to one that includes whole house performance contracting. Providing these contractors with new technical skills and a revised business approach is one way to achieve widespread industry change.

IBACOS has embarked upon a research effort under the Building America program to understand business impacts and change management strategies HVAC companies can use to quickly transition from a “traditional” heating and cooling contractor to one that provides whole house energy upgrades. For these companies, energy upgrades may be a new guiding corporate strategy, a complementary but separate in-house service offering, or a service to be offered in partnership with other qualified contractors. IBACOS will use the knowledge gained from this research to develop guidelines and other relevant documentation that can help HVAC contractors quickly understand:

- The different business strategies of whole house performance contracting
- What is involved in changing their business
- The quickest and most efficient method to make changes
- Barriers and lessons learned by others who have already made the transition

IBACOS is currently working to document business approaches and “transformation pathways” through a literature search and interviews with a variety of companies. IBACOS held an Expert Meeting to validate work performed to date and to ask industry representatives to comment on the outlined research approach.

2 Meeting Logistics

The Expert Meeting was conducted on March 29, 2011 in San Francisco, CA, prior to the Affordable Comfort Institute 2011 National Convention. Seven industry experts identified by IBACOS participated in the session along with a representative of NREL.

2.1 Topic

Transitioning Traditional HVAC Contractors to Whole House Performance Contractors

2.2 Location and Time

San Francisco Marriott Marquis Hotel
55 Fourth Street
San Francisco, CA 94103
March 29, 2011
1:00PM – 4:30PM

2.3 Attendees

The meeting included contributions from seven industry representatives plus two IBACOS team members and a representative from NREL. Additionally, three individuals participated in some or all of the meeting via the webinar in listen-only mode. All meeting attendees are listed in Table 1.

Table 1. Expert Meeting Contributors/Listen-only Participants (*)

Name	Organization
Jerry Unruh	ABC Heating & Cooling Services
Joe Kuonen	CLEARResults Consulting, Inc.
Dick Kornbluth	Dick Kornbluth LLC
Stephen Self	EGIA
Arn Burdick ^r	IBACOS, Inc.
Duncan Prah ^r	IBACOS, Inc.
Glenn Cottrell*	IBACOS, Inc.
Dan Kartzman	Powersmith Home Energy Solutions
Blain Fox	Warm Thoughts
David Erne	Booz Allen Hamilton
Mike Gestwick	NREL
David Mallay*	NAHB Research Center
Craig Savage*	BARA

^r Speaker

3 Meeting Objectives and Agenda

A presentation was made by IBACOS outlining the typical business operations of a whole house performance contracting company. This was followed up by a 3-hour discussion on those areas that differ between a traditional HVAC contractor and that of a whole house performance contractor with an emphasis on the areas that present the greatest transition challenges.

3.1 IBACOS' Research Questions

IBACOS has defined the following research questions relative to this area of study:

- What are the business best practices associated with well-run whole house performance contracting companies?
- What are the business profiles for HVAC companies to offer whole house performance contracting?
- What are transition strategies for HVAC companies who want to become home performance contractors?

3.2 Meeting Specific Objectives

The major objectives of the Expert Meeting were to:

- Review and validate the general business strategies for traditional HVAC companies and whole house energy upgrade companies
- Review preliminary findings on the differences between the structure of traditional HVAC Companies and whole house energy upgrade companies
- Seek industry input on how to structure information so it is relevant and useful for traditional HVAC contractors who are transitioning to becoming whole house energy upgrade contractors

3.3 Agenda

The meeting closely followed the agenda found in Table 2.

Table 2. Expert Meeting Agenda

1:00 – 1:15 pm	Introductions and Project Overview; IBACOS
1:15 – 2:15 pm	Presentation of business strategies, company differences, and structure of anticipated Guideline document(s); IBACOS
2:15 – 2:30 pm	Break
2:30 – 4:15 pm	Roundtable Discussion: Findings to date, structure of future Guideline and other documentation that are expected to come from this research
4:15 – 4:30 pm	Summary, Next Steps, and Meeting Conclusion

4 Presentation

The presentation delivered by IBACOS (Appendix 1) highlighted the objectives of the research project, the results of work performed thus far by IBACOS to identify a typical whole house performance contracting company business profile and the initial identification of critical transition points or challenges facing the traditional HVAC contractor moving into the energy upgrade business. Three reasons for focusing on the HVAC contractor were presented:

1. An HVAC company may already have an ongoing service relationship with a homeowner.
2. The core competencies of an HVAC company are already with a technically complex system in the house.
3. An HVAC company has much to gain from incorporating whole house thinking to their service offering (i.e. improved shell with new HVAC = better performance = fewer call backs and more referrals).

IBACOS then presented two primary routes of transition for an HVAC contractor taking on whole house performance contracting:

1. Sub-contracting out the shell repair work
2. Integrating the shell repair work into their existing business.

Table 3 shows the assumptions, based on the PIER Whole House Contracting Study, trade magazine literature searches, and interviews performed by IBACOS with industry experts leading up to the Expert Meeting. These interviews helped to identify how an integrated whole house performance contracting company could be divided into seven Operational Areas. Key Business Functions were shown falling within each Operational Area. Business Functions where the transitioning HVAC contractor are anticipated to struggle and would benefit from guidance are highlighted in the table and were used to form the basis of discussion with the expert panel, and referred from this point forward as “Transition Points.”

To facilitate further discussion of these Transition Points, each of the Business Functions were broken down to reflect their respective Work Activities. Following the presentation, the expert panel was asked to rate each of the Work Activities for its importance, ensuring a successful transition. Additionally, the relative difficulty of successfully executing each Work Activity as an element of a new business strategy was defined by the group.

Those Transition Points receiving the highest value and most difficulty rating will become the focus of IBACOS’ next phase of work, leading to the development of guidelines and other relevant documentation to help HVAC contractors to successfully transition the business operations. Ratings are discussed in Section 5 and tabulated in Appendix 2.

Table 3. Typical High-Level Business Operations Profile or “Map” of Whole House Performance Contractor

<i>Operational Area</i>	Business Planning/ Processes	Marketing/ Customer Contact	Assessment	Sales	Contract Administration	Production	Customer Service
<i>Business Functions</i>	Training	PR Strategies	Customer Interaction	Proposal	Contracting	Project Planning & Scheduling	Customer Relations
	Employee Relations	Advertising Strategies	Whole House Assessment	Sales Presentation to Customer	Customer Financing	Project Implementation	Warranty Requests Resolution
	Procurement	Customer Referral Strategies		Closing	Rebate and Incentive	Quality Assurance	
	Subcontracts	Call Management			Accounts Receivable / Payable		
	Strategic Planning	Lead Management					

Grey highlighted Business Functions indicates areas of anticipated transition challenges – “Transition Points.”

5 Discussion

Following the presentation and in effort to achieve the first two meeting objectives listed in Section 3.2 (“Review/Validate” and “Review Differences”) the expert panel was asked to rate each of the Work Activities for its importance to the transitioning contractor and the relative difficulty in executing that activity in an HVAC business.

5.1 Transition Point Ratings

Under each of the seven Operational Areas, IBACOS sought the experts’ validation on the completeness of the business profile or “map” and the appropriateness of IBACOS’ assessment of the Transition Points.

The rating of the specific Business Functions were broken down as #1 = low value to the transitioning contractor through #4 = highest value to the transitioning contractor as well as #1 = easiest to execute through #4 = most difficult to execute.

5.1.1 Business Planning/Process

Training, Procurement, Subcontracts, and Strategic Planning were identified by IBACOS during the early literature searches as the Business Functions that would be Transition Points for a traditional HVAC contractor undertaking whole house energy upgrades. These Transition Points were validated by the group and the Work Activities, highlighted in Table 4, represent the transition challenges in this area.

Table 4. Business Planning/Process “Map”

Operational Area	Business Planning/Processes				
Business Function	Training	Employee Relations	Procurement	Subcontracts	Strategic Planning
Work Activities	Technical	Job Progression/ Growth	Manufacturer Relations	Vendor relations	Company Mission/ Vision
	Safety	Retention	Material Inventory	Pricing	Five Year Strategic Plan
	Management	Compensation	New Equipment		One year operational plan
	Sales	Referral bonus	Equipment maintenance/ repair/ calibration		Management Objectives
		Quality Management	Pricing		Quality Management
Internal Lead	<i>Leadership Team</i>	<i>Leadership Team</i>	<i>Leadership Team</i>	<i>Leadership Team</i>	<i>Leadership Team</i>
External Resources	<i>Training/certification providers</i>	<i>HR/Quality Management Consultants</i>	<i>Manufacturers</i>	<i>Subcontractors Manufacturers</i>	<i>Management Consultants</i>

The yellow highlight indicates specific area modifications to business processes that are likely when transitioning to a whole house performance contractor.

The Work Activities identified as Transition Points for the Business Planning/Process area were:

- Technical Training
- Manufacturer Relations
- Equipment Inventory
- Equipment Maintenance/Calibration
- Vendor Relations
- Strategic Planning

The relative rating of the Work Activities under Business Planning/Process are shown in Table 5.

Table 5. Relative Rating of the Work Activities of Business Planning/Process

Business Planning / Processes		
	Easy	Hard
More Value	<p>Technical Training</p> <p>Value : 4 Difficulty : 2</p>	<p>Equipment Inventory</p> <p>Value : 4 Difficulty : 3</p> <p>Vendor Relations and Strategic Planning</p> <p>Value : 4 Difficulty : 4</p>
Less Value	<p>Manufacturer Relations</p> <p>Value : 1 Difficulty : 1</p> <p>Equipment Maintenance /Calibration</p> <p>Value : 2 Difficulty : 2</p>	

The highest rated Transition Points for the Business Planning/Process area were guidance on Vendor Relations and Strategic Planning followed by Equipment Inventory. Vendor Relations, understanding the needs when sub-contracting out shell or other work, was identified as both very important and difficult. The discussion on the subject of sub-contracting lead into the Strategic Planning discussion and a need for a pros/cons comparison of using subcontractors or developing a department within the business. Strategic Planning was highly rated. Buy in from the entire company to the cultural change of the company was identified as a potential challenge. Understanding of the equipment required was important, but tool sales outlets are making it easier by bundling tools together into packages.

Technical Training was rated as a high value to the contractor, but not difficult to achieve once a company understood what was needed. Conversation centered on the confusion with different certification agencies. It was put forth that the training requirements were regional in nature, but ongoing and never ending.

Lower rated points were Equipment Maintenance/Calibration and Manufacturer Relations. Calibration of equipment is not a new concept to the HVAC contractor, however, the level of calibration or amount of equipment needing calibration is a Transition Point. Manufacturer Relations were not deemed to be a significant transition issue.

5.1.2 Marketing/Customer Contact

PR Strategies, Customer Referral Strategies, and Call Management were identified during the early literature searches as the Business Functions that would be Transition Points for a traditional HVAC contractor undertaking whole house energy upgrades. These Transition Points were validated by the group and the Work Activities, highlighted in Table 6, represent the transition challenges in this area.

Table 6. Marketing/Customer Contact “Map”

Operational Area	Marketing/Customer Contact				
Business Function	PR Strategies	Advertising strategies	Customer Referral strategies	Call Management	Lead Management
Work Activities	Newspaper	Newspaper	Community Engagement	Call Scripting (Inbound and Recurring)	Sales Coordination
	Local TV/ Radio	Local TV/ Radio	Social Media	Inbound Call Process (New Leads)	Lead Database and tracking
	“Local Expert”	Billboards	Direct referral programs	Recurring Call Schedule (Service Appointments)	Lead Qualification
	Customer Education	Neighborhood Blitz	Newsletter/ (e – or paper)		Scheduling
	Home Shows	Website	Service Tech Referrals		Appointment Verification
		Search Engine Optimization			
Internal Lead	<i>Marketing</i>	<i>Marketing</i>	<i>Marketing</i>	<i>Operations</i>	<i>Sales/ Operations</i>
External Resources	<i>PR Agency</i>	<i>Ad Agency/ Designer</i>	<i>Ad Agency/ Designer/ Community Groups</i>	<i>Sales Consultant</i>	<i>Sales Consultant</i>

The yellow highlight indicates specific area modifications to business processes that are likely when transitioning to a whole house performance contractor.

The Work Activities identified as Transition Points for the Marketing/Customer Contact area were:

- Customer Education
- Community Engagement
- Social Media
- Direct Referral Programs
- Newsletter
- Service Tech Referrals
- Call Scripting
- Inbound Call Process
- Recurring Call Schedule

The relative rating of the Work Activities under Marketing/Customer Contact are shown in Table 7.

Table 7. Relative Rating of the Work Activities of Marketing/Customer Contact

Marketing / Customer Contact		
	Easy	Hard
More Value		<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <p>Customer Education and Community Engagement</p> <p>Value : 4 Difficulty : 4</p> </div>
Less Value	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;"> <p>Direct Referral Programs, Service Tech Referrals, Call Scripting and Inbound Call Process</p> <p>Value : 2 Difficulty : 1</p> </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-bottom: 5px;"> <p>Vendor Relations, Strategic Planning</p> <p>Value : 1 Difficulty : 1</p> </div>	

The highest rated Transition Points for the Marketing/Customer Contact are Customer Education and Community Engagement. It was acknowledged that Whole House Performance Contracting is a new industry with little customer awareness. The message of the industry cannot be described in a 30-second advertising spot or print advertising. It requires an in-depth conversation to properly convey the message. The mindset change from selling equipment to selling whole house solutions is an area the group confirmed to be of high value. The Whole House Performance Contractor must take on Customer Education. Guidance in this area is valuable.

The remaining areas of Marketing/Customer Contact were viewed as similar between the HVAC contractor and the Whole House Performance Contractor, so little value was placed on guidance in these areas. The process is the same but the script will change.

5.1.3 Assessment

Customer Interaction and Whole House Performance Assessment were identified by IBACOS during the early literature searches as the Business Functions that would be Transition Points for a traditional HVAC contractor undertaking whole house energy upgrades. These Transition Points were validated by the group and the Work Activities, highlighted in Table 8, represent the transition challenges in this area.

Table 8. Assessment “Map”

Operational Area	Assessment	
Business Function	Customer Interaction	Whole House Performance Assessment
Work Activities	Pre-Audit Preparation Call	Exterior Architectural Features Assessment
	Arrival Process	Interior Building Features Assessment
	On Site Customer interview Comfort, Energy, Dust, Mold, Moisture, Respiratory, Sound, Other???	Thermal Enclosure Components <ul style="list-style-type: none"> • Insulation • Fenestration / Doors
		Space Conditioning System Assessment
		Plumbing System Assessment
		Electrical System Assessment
		Moisture Assessment
		System Testing
		Home Energy Upgrade Modeling
Internal Lead	<i>Operations</i>	<i>Operations</i>
External Resources		

The yellow highlight indicates specific area modifications to business processes that are likely when transitioning to a whole house performance contractor.

The Work Activities identified as Transition Points for the Assessment area were:

- Pre-Assessment Preparation
- Arrival Process
- On Site Customer Interview
- Whole House Performance Assessment

The relative rating of the Work Activities under Assessment are shown in Table 9.

Table 9. Relative Rating of the Work Activities of Assessment

Assessment				
	Easy	Hard		
More Value		<table border="1" style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;"> Pre-Audit Preparation Value : 4 Difficulty : 3 </td> <td style="width: 50%; text-align: center;"> On Site Customer Interview and Whole House Performance Audit Value : 4 Difficulty : 4 </td> </tr> </table>	Pre-Audit Preparation Value : 4 Difficulty : 3	On Site Customer Interview and Whole House Performance Audit Value : 4 Difficulty : 4
Pre-Audit Preparation Value : 4 Difficulty : 3	On Site Customer Interview and Whole House Performance Audit Value : 4 Difficulty : 4			
Less Value	<table border="1" style="margin: auto;"> <tr> <td style="text-align: center;"> Arrival Process Value : 2 Difficulty : 2 </td> </tr> </table>	Arrival Process Value : 2 Difficulty : 2		
Arrival Process Value : 2 Difficulty : 2				

The highest rated Transition Points in the Assessment area were the On Site Interview and the Whole House Performance Assessment. The Assessment process may be program driven but a whole house assessment is very different from the typical HVAC diagnosis and solution. Pre-Assessment Preparation was different and the need for guidance was given high value for the Assessment process in the preparation of the customer. The homeowner’s participation in the

Assessment and the amount of time required for the Assessment was a critical component identified.

The Arrival Process was described as similar to preparation for a typical HVAC service call and therefore not rated high value or difficult.

5.1.4 Sales

Proposal, Sales Presentation to Customer, and Closing were identified during the early literature searches as the Business Functions that would be Transition Points for a traditional HVAC contractor undertaking whole house energy upgrades. These Transition Points were validated by the group and the Work Activities, highlighted in Table 10, represent the transition challenges in this area.

Table 10. Sales “Map”

Operational Area	Sales		
Business Function	Proposal	Sales Presentation to Customer	Closing
Work Activities	Work Scope Development and Approval	Close at Audit Process	Contracting
	Customer Presentation Package	Follow up Sales Process	Identify Financing Needs
	Anticipated Objections	Phased Implementation Sales Process	Rebates / Incentives
	Assessment Report	Overcoming Objections	
	Pricing		
	Subcontracts		
Internal Lead	<i>Sales</i>	<i>Sales</i>	<i>Sales / Operations</i>
External Resources	<i>Subcontractors</i>		<i>Finance Partners</i>

The yellow highlight indicates specific area modifications to business processes that are likely when transitioning to a whole house performance contractor.

The Work Activities identified as Transition Points for the Sales area were:

- Customer Presentation Process
- Assessment Report
- Phased Implementation Sales Process
- Rebates/Incentive

The relative rating of the Work Activities under Sales are shown in Table 11.

Table 11. Relative Rating of the Work Activities of Sales

Sales		
	Easy	Hard
More Value		<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center;">Customer Presentation Process and Audit Report</p> <p style="text-align: center;">Value : 4 Difficulty : 3</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Phased Implementation Sales Process</p> <p style="text-align: center;">Value : 3 Difficulty : 3</p> </div>
Less Value	<div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: 80%;"> <p style="text-align: center;">Rebates/Incentives</p> <p style="text-align: center;">Value : 1 Difficulty : 1</p> </div>	

The highest rated Transition Points in the Sales area were the Customer Presentation Process and Assessment Report. The whole house solution is a more complex package to sell and a longer sales cycle than the HVAC contractor is typically used to implementing.

Phased Implementation Sales Process where HVAC equipment may not be the highest priority of the project is a different realm for the transitioning contractor.

From a Sales perspective the HVAC contractor has an understanding of and is already using Rebates /Incentives so little value was placed on guidance in this area.

5.1.5 Contract Administration

Customer Financing was identified during the early literature searches as the Business Functions that would be Transition Points for a traditional HVAC contractor undertaking whole house energy upgrades. These Transition Points were validated by the group and the Work Activities, highlighted in Table 12, represent the transition challenges in this area.

Table 12. Contract Administration “Map”

Operational Area	Contract Administration			
Business Function	Contract Processing	Customer Financing	Rebate and Incentive	Accounts Receivable / Payable
Work Activities	Contract Review and Approval	Financing Mechanisms	Utility Reporting	Create Account
	Create Work Order	Loan Processing	State or Local Program Reporting	Deposit Payments
	Inventory and Production Management		Tax Credit Reporting	Billing
	Subcontracts			Payment Terms
Internal Lead	<i>Operations</i>	<i>Operations</i>	<i>Operations</i>	<i>Operations</i>
External Resources	<i>Subcontractors</i>	<i>Financial Partners</i>	<i>Program Staff</i>	

Yellow highlight indicates specific area modifications to business processes are likely when transitioning to a whole house performance contractor. The Work Activities identified as Transition Points for the Contract Administration area were:

- Financing Mechanisms
- Loan Processing
- Rebate and Incentive

The relative rating of the Work Activities under Contract Administration are shown in Table 13.

Table 13. Relative Rating of the Work Activities of Contract Administration

Contract Administration		
	Easy	Hard
More Value		<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p>Rebate and Incentive</p> <p>Value : 4 Difficulty : 4</p> </div>
Less Value	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p>Loan Processing</p> <p>Value : 1 Difficulty : 1</p> </div>	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p>Financing Mechanisms</p> <p>Value : 1 Difficulty : 3</p> </div>

The highest rated Transition Point in the Contract Administration area was Rebate and Incentive. This was identified by the experts as a critical specific activity IBACOS had not identified. Programs may conflict between Utility, State, and Federal rebates. While it is regional and program driven the guidance on the complexities to manage programs were rated as high value to the transitioning contractor.

The need for guidance on Financing Mechanisms and Loan Processing were not rated as high value to the transitioning contractor.

5.1.6 Production

Project Implementation and Quality Assurance were identified during the early literature searches as the Business Functions that would be Transition Points for a traditional HVAC contractor undertaking whole house energy upgrades. These Transition Points were validated by the group and the Work Activities, highlighted in Table 14, represent the transition challenges in this area.

Table 14. Production “Map”

Operational Area	Production		
Business Function	Project Planning	Project Implementation	Quality Assurance
Work Activities	Scheduling <ul style="list-style-type: none"> In House Subcontracts 	Work Scope Procedures	Job Completion Verification <ul style="list-style-type: none"> Checklists Test results review
	Inventory / material preparation	Job Safety	Post Installation Field Verification Sample
	Crew Lead Work Scope Review	Customer interaction procedures	Customer Satisfaction Scores
		Job Completion / Test Out	
		Change Orders	Sponsoring Program QA
		Subcontractors	
Internal Lead	<i>Operations/Production</i>	<i>Production</i>	<i>Production/Operations</i>
External Resources			

The yellow highlight indicates specific area modifications to business processes that are likely when transitioning to a whole house performance contractor.

The Work Activities identified as Transition Points for the Production area were:

- Work Scope Procedures
- Customer Interaction Procedure
- Job Completion/Test-Out
- Job Completion Verification
- Post Installation Verification Sample
- Sponsoring Program QA
- Subcontractors

Based on the experts input, the proposed Work Activity Utility Bill Review was removed from Production. It was determined this was not a Production activity in the market.

The relative rating of the Work Activities under Production are shown in Table 15.

Table 15. Relative Rating of the Work Activities of Production

Production				
	Easy		Hard	
More Value	Job Completion Verification Value : 4 Difficulty : 1		Subcontractors Value : 4 Difficulty : 3	Work Scope Procedures Value : 4 Difficulty : 4
		Customer Interaction Procedure Value : 3 Difficulty : 2	Job Completion / Test-Out Value : 3 Difficulty : 3	
Less Value	Post Installation Verification Sample and Sponsoring Program QA Value : 1 Difficulty : 1			

The highest rated Transition Point in the Production area was Work Scope Procedures. Guidance on the more complex Work Scope Procedures of a whole house performance job was rated the most valuable, followed by guidance on managing Subcontractors if they are used and Job Completion/Test-Out. Communication from the Sales process to the Work Scope was highlighted as an important component for successful jobs.

Job Completion Verification and Customer Interaction Procedure guidance was rated as valuable but not difficult for the transitioning contractor to implement.

Low value and easy implementation ratings were given to guidance on Post Installation Verification Sample and Sponsoring Program QA.

5.1.7 Customer Service

Customer Relations and Warranty Requests Resolution were identified during the early literature searches as the Business Functions that would be Transition Points for a traditional HVAC contractor undertaking whole house energy upgrades. These Transition Points were validated by the group and the Work Activities, highlighted in Table 16, represent the transition challenges in this area.

Table 16. Customer Service “Map”

Operational Area	Customer Service	
Business Function	Customer Relations	Warranty Requests Resolution
Work Activities	Customer Appreciation	Customer Care Intake
	Certificate	Scheduling
	Rating Score	Customer Visit Process
	Guarantee	Utility Bill Review
	Homeowner Manual	Service Call Diagnostics
	Referral Cards/Lead Generation	Warrantable item Repair/Replacement
	Billing and Collections	Manufacturer Relations
	Utility/Local Program Documentation	Subcontractor Management
Internal Lead	<i>Operations</i>	<i>Production</i>
External Resources		

The yellow highlight indicates specific area modifications to business processes that are likely when transitioning to a whole house performance contractor.

The Work Activities identified as Transition Points for the Contract Administration section were:

- Diagnostics
- Repair/Replacement

The relative rating of the Work Activities under Customer Service are shown in Table 17.

Table 17. Relative Rating of the Work Activities of Customer Service

Customer Service		
	Easy	Hard
More Value		
Less Value		<div style="border: 1px solid black; padding: 5px; width: fit-content;"> Diagnostics and Repair / Replacement Value : 2 Difficulty : 3 </div>

Guidance on undertaking Diagnostics of a Warranty request or the Repair/Replacement of items needing Warranty was given a low value while the difficulty of implanting was higher.

5.2 Information/Deliverable Structure

In seeking the experts input on how to structure information so it is relevant and useful for traditional HVAC contractors who are transitioning to becoming whole house energy upgrade contractors a few themes emerged:

- White papers are not likely to be read on a widespread basis.
- Short web-based videos that could be viewed over a lunch break or in spare time could be effective for some topics.
- Webinar presentations can be effective if they are not too long.
- Trade magazine articles get the initial interest.

- HVAC contractors rely on their distributors/manufacturers to convey trusted information.
- Face-to-face, handshake relationships are highly valued in the industry.

6 Conclusions and Next Steps

The expert panel validated the general business profile of an integrated HVAC and Shell contractor performing Whole House Performance contracting. The level of detail that the business profile was broken down to was complimented for its completeness. A few items were added by the experts under the Marketing/Customer Contact area regarding utilizing the HVAC contractors existing customer base and one item was removed from the Production area as being outside the scope of the business.

Transition Points were validated and carefully rated for value of guidance and difficulty to implement. There were fifteen activities that rose to the top as being #4 (highest) for value to the transitioning contractor. The entire matrix of value to a transitioning company and difficulty to implement can be found in Appendix 2 of this report.

- Technical Training
- Equipment Requirements
- Vendor Relations
- Strategic Planning
- Customer Education Process
- Community Engagement
- Assessment Arrival Process
- On-Site Customer Interview
- Whole House Assessment
- Customer Presentation Package
- Assessment Report
- State or Local Program Reporting
- Work Scope/Procedures
- Job Completion Verification
- Sub-Contracting

The value of guidance in the form of a white paper was called into question by the expert panel as well as the value of webinars if they are too long in length. The use of the HVAC equipment distributor/manufacturer as a point of contact or outlet of information to the transitioning contractor was highlighted as a valuable resource. Keeping the information in short understandable chunks was unanimously agreed upon.

IBACOS intends to incorporate feedback from the expert panel to refine the research plan. From there IBACOS expects to characterize these “Highest Priority, Most Difficult to Implement” processes, identify the barriers or information gaps associated with these processes, determine which of the high value activities will be undertaken first and which structure the guidance will take given project time and budget constraints.

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Appendix 1. Expert Meeting Presentation

Transitioning Traditional HVAC Contractors to Whole House Performance Contractors ([PDF 808 MB](#))

Appendix 2. Full Value Ratings of Work Activities

Operational Area	Work Activity	Value of Guidance to Contractor	Difficulty	Sum
Business Planning / Process	Training	4	2	6
	Manufacturer Relations	1	1	2
	Equipment	4	3	7
	Equipment Maintenance/Calibration	2	2	4
	Vendor Relations	4	4	8
	Strategic Planning	4	4	8
Marketing and Customer Contact	Customer Education	4	4	8
	Community Engagement	4	4	8
	Social Media	1	1	2
	Direct Referral Programs	2	1	3
	Newsletter	1	1	2
	Service Tech Referrals	2	1	3
	Call Scripting	2	1	3
	Inbound Call Process	2	1	3
	Recurring Call Schedule	0	0	0
	Pre-Assessment Preparation	3	1	4
Assessment	Arrival Process	4	3	7
	On Site Customer Interview	4	4	8

Assessment	Whole House Performance Assessment	4	4	8
Sales	Customer Presentation Process	4	3	7
Sales	Assessment Report	4	3	7
Sales	Phased Implementation Sales Process	3	3	6
Sales	Rebates / Incentives	1	1	2
Contract Administration	Financing Mechanisms	1	3	4
Contract Administration	Loan Processing	1	1	2
Contract Administration	State or Local Program Reporting	4	4	8
Production	Work Scope Procedures	4	4	8
Production	Customer Interaction Procedure	3	2	5
Production	Job Completion / Test-Out	3	3	6
Production	Job Completion Verification	4	1	5
Production	Post Installation Verification Sample	1	1	2
Production	Sponsoring Program QA	1	1	2
Production	Subcontractors	4	3	7
Customer Service	Diagnostics	2	3	5
Customer Service	Repair / Replacement	2	3	5

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