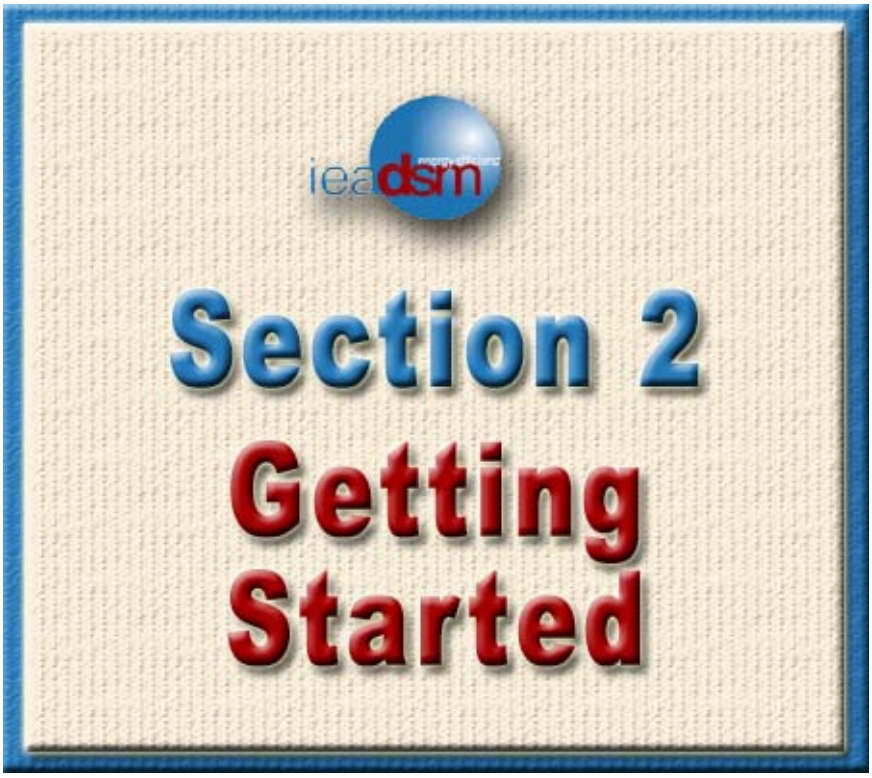
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Section 2
Getting
Started

SECTION 2: GETTING STARTED

One of the most difficult parts of a project is determining where to start. In the Wizard of Oz, Dorothy was told that it is always best to start your journey at the beginning. This advice, while overly simplistic, can help to ensure the end result from participation is a positive one. To put it another way, in order to build a strong house, you must have a strong foundation because each step in the construction process builds on top of the first.

If we apply this advice to Task XIII, we concluded that creating an in-country stakeholder group is the best place to start the journey. This group also helps establish the foundation for future efforts. Obtaining proper industry, consumer, and regulatory support at the beginning of the project will help when it comes time to try to implement DR efforts at the end of the project. This team will help set the goals and methods for including DR in the local market operations. It's true that the Task XIII team of experts will assess a number of technical issues, provide some guiding tools, and review some state of the practice strategies, but the local team will ultimately have to buy-in to the implementation plan or the DR project will not be anything more than an idea. Given that Task XIII's ultimate intent is to promote the development of DR solutions in the participating country, we conclude that it is best to start the project by bring together those that will have a say in the process upfront so that they develop project equity and become commitment to making it a reality.

In this section, we will discuss the establishment of an in-country stakeholder. This will include the type of market actors that should be considered, some suggested project goals to consider, and the importance of a communication strategy.

Demand Response Overview

In order to create a motivated stakeholder group, the leader will need to be able to articulate what demand response is, why it is useful, and who can benefit from it.

Demand Response Definition
Task XIII has adopted a definition of demand response from previous IEA DSM work.

> *Demand response is the ability of electricity demand to respond to variations in electricity prices in 'market' or 'real' time. It can be achieved through facility load reductions or utilizing alternative onsite generation sources.*

This definition explains that demand response resources are responsive to some price signal. The price signal can take any number of forms such as time-of-use tariffs from the local distribution company to direct wholesale market signals (this will be discussed in more detail in section 3). The key distinction is that the consumer takes some action, whether manual or automated, based on these price signals at a given point in time. In contrast, traditional energy efficiency efforts provide a passive and continuous load reduction (e.g. reduce lighting wattage). The active response provided by DR allows it to be utilized and dispatched in a manor similar to traditional generation sources.

Demand Response Use
In practice and in simulation DR has demonstrated the ability to impact energy, capacity, reserves, and in some instances, ancillary service markets. The increase elasticity of demand can have a significant impact on market prices. Some studies have shown that a 3-5% reduction in demand during a peak pricing hour can reduce the energy cost for that hour by 20-50%. In fact, Dr. Vernon Smith, professor of Economics at George Mason University (Located in Virginia, USA and close to Washington D.C.), was awarded the 2003 Nobel Prize in Economics for his study in this area.

DRR are the result of actions and policies whereby customers alter their demand for electricity in response to price signals. This provides significant benefits in constrained networks where price peaks in wholesale markets are dampened thereby reducing costs and risks for all market participants. DRR offer a highly flexible and naturally distributed resource to network operators. Demand response enhances security, particularly on constrained networks, as higher concentrations of demand are typically located at network nodes where congestion is high and network security most vulnerable.

A recent utilization of DRR can provide a useful illustration to its potential impact in the marketplace. In the August 2003 blackout of the Northeastern USA, demand response resources were used extensively to restore power smoothly. The New York Independent System Operator (NYISO) calculated that its demand response program provided substantial benefits to the market by helping the power grid recover from the August 2003 Blackout. Specifically, they estimated that on August 15, 2003, the participating DRR of 593.9 MW provided $50.8 M (US) worth of economic benefits at a cost of $5.9 M (US). This equates to a benefit / cost ratio of 8.7[3].

It is unlikely that the NY market would have received similar benefits had NYISO not had the foresight to implement a DRR initiative in 2001. The benefits of DRR are directly

tied to their availability during infrequent emergency or peak pricing conditions. By its nature, DRR provides available capacity for a few high cost hours throughout the year. This is an ideal resource to meet the needs of low probability, high consequence events. However, to ensure that DRR is available when it is needed, there must be prudent strategic planning, proper market signals, and coordinated efforts amongst all participants. Markets must have business rules, infrastructure and educated participants so people know what they are supposed to do and how they are supposed to do it. This requires DRR to be viewed as a strategic resource that is developed and nurtured throughout the year so that the resources can be dependable when it is actually needed.

Demand Response Beneficiaries

Understanding who benefits from DR in a given marketplace will have an impact on things such as market design, industry acceptance, and political/regulatory support. It will also help guide the creation of the country stakeholder group.

The following list is certainly not exhaustive, but it does provide an overview of benefits for various categories of market actors.

Participating Consumer – The participating consumer is the entity that actually provides the demand response. This entity generally benefits from direct financial reward for participating during a given event and the reduction of energy that would have normally been consumed during the event. The financial reward could be some percentage of the energy market price, a regular capacity reservation payment/call option, a reduction in energy rates, a combination of the above, and/or some other structure. The point is that they are generally provided with some incentive to earn their participation.

Local Distribution Company (LDC) – LDCs have benefited from DR by including it as a resource in their supply portfolio and/or utilizing its distributed nature to surgically target specific distribution challenges (e.g. deferral of substation development, distribution system congestion). DR can be one of, if not, the most inexpensive resources, so it provides an excellent hedge to “high cost, but low frequency” events (e.g. top 100 hourly prices). Some LDCs have also used DR as a strategic resource to defer the development of new substations. If properly implemented, this strategy can shave years off of costly upgrades thereby improving the overall financial performance of the firm.

Energy Retailer – The energy retailer can benefit from DR by including it as a resource in their supply portfolio, just as an LDC may. This could help them have an overall lower operating cost, which allows them to be more competitive and ultimately more profitable in the market. Many retailers also use DR as a customer acquisition/retention tool. By offering the service to their customers and prospects, they are enhancing their product portfolio and increasing their attractiveness to consumers that wish to provide the service.

Demand Response Service Provider (aka Curtailment Service Provider) - In some markets, there are firms that have entire businesses built around aggregating consumer demand response capability and offering it into the energy market along side supply side options. Since DR has a relatively low operating cost when compared to other peaking

sources (e.g. combustion turbine), these firms are able to operate "virtual power plants" with lower operating expenses. They also tend to provide other services to their customers in conjunction with or as an energy service company (See below).

Energy Service Company – This market actor provides energy related products and services to consumers (via the LDC/Retailer or directly). Many of these products and services can be used to provide DR capacity/performance. This could include things such as control systems to manage equipment and/or lighting, energy audits to assess facility level DR implementation strategy, and onsite generation installations and maintenance, just to name a few. These firms benefit from DR markets from increased utility for their services and improved project ROI.

System Operators – System Operators are generally charged with ensuring grid reliability and fair markets. Demand response, by its very nature, can directly assist with both of these issues. First, DR is a distributed resource. With proper market rules, incentives, and infrastructure, system operators can use demand response to strategically address system reliability issues such as congestion. ISO-New England has been utilizing this approach to help deal with transmission congestion problems in Southwest Connecticut, one of the most congested zones in the entire USA.. DR provides them with a callable resource inside the load pocket that they can activate when needed. In addition, as noted previously, DR can impact demand elasticity thereby causing more efficient market pricing.

Regulators: Regulators tend to seek solutions that benefit society and reduce market power. DR can provide lower energy cost when properly utilized by impacting demand elasticity. This same trait helps to mitigate market power that supply side bidders may have during peak pricing events. Therefore, regulators generally receive positive marks from consumers for promoting DR.

Society: Each of the other categories discussed DR's impact on a specific type of firm or organization. However, it is important to recognize that society as a whole benefits from DR by reducing the overall cost of energy supply. This can be good and potentially bad at the same time. The value that any individual participant receives, whether it's the consumer, the commodity supplier, the retailer, etc., will establish the basis for their interest level for participating. It may be easily demonstrated that robust demand response in a given marketplace can have dramatic impact on societal energy costs, but if individual actors do not receive the proper incentives to participate the societal benefits may be lost. In economic circles this is known as the "tragedy of the commons."

Stakeholder Group Formation

This above list illustrates some of the ways that various categories of market actors accrue benefits from demand response. Some market actors such as those that the participating consumer, LDC, and retailers benefit directly from their actions through financial rewards or lower operating expenses, while others such as society at large receive indirect benefits from the actions of others. It is important to keep this in mind when seeking to build a stakeholder group. The entities that receive direct benefits should

be more willing to participate than those that do not.

Market Actors

The following table provides some examples of the various market actors from a few sample countries. This table is intended to be indicative of the type of organizations that might be targeted to participate in the stakeholder group. More descriptive information on each entities role in the market can be located in the respective country's Marketplace Overview.

	Australia	**Denmark**	**Italy**	**Japan**
Participating Consumer	Energy User Association of Australia; Energy Action Group	Iron foundry industry	AICEP; CONFINDUSTRIA	
Local Distribution Company	Energy Australia; Energex; Origin Energy	NESA; Kobenhavens Energi; SEAS	ENEL; Acea Roma	10 vertically integrated power companies (EPCos); Federation of Electric Power Companies; Heat Pump & Thermal Storage Technology Center of Japan
Energy Retailer	Energy Supplier Association of Australia	Association of Danish Energy Companies (17 firms)	DALMINE ENERGIE	Power Producers & Suppliers (PPS)
Demand Response Service Provider				
Energy Service Company	Business Council for Sustainable Energy		SIRAM	
System Operator	National Electricity Market Management Company (NEMCO)	Elkraft System, Eltra, NordPool,	GRTN; GME	The 10 vertically integrated power companies perform this role

National Regulators	Ministerial Council on Energy; NEM Ministers Forum; NECA; NEMMCO; ACCC	Danish Energy Authority (DEA); Danish Energy Regulatory Authority (DERA)	Ministry of Productive Activities; Regulatory Authority for Electric & Gas	Agency for Natural Resources and Energy
Regional Regulators (province, state, etc.)	Office of Renewable Energy Regulator; Department of Energy, Utility and Sustainability; Essential Services Commission			

Making substantive changes in market operations, such as inserting DR into an existing market, tends to be an evolutionary process. People and organizations need time to understand what the impacts might be, to develop appropriate business processes to support and manage the changes, and to develop strategies that help them to benefit from the changes.

Different market actors also may have different perspectives on certain issues even from inside the same category. For example, many consumers may view that utilizing their onsite generation assets as the easiest way to provide its capacity, but a regulatory agency may have usage or permitting rules that make it difficult to do so. It is helpful to identify these issues at the beginning of the project so that there is time to work through the specifics of it in time for implementing a project. The best way to do this is to seek participation from all stakeholder classes at the beginning of the project.

Project Goals & Objectives

Once the stakeholder group is formed, the first thing the team should do, after establishing a common understanding of what DR is and how it might benefit the market, is to develop a clear set of project goals and objectives. This will help guide the team towards an end result (which hopefully will be an operational DR project).

There are many different ways to approach establishing the project goals and objectives. The USA team held a brainstorming session.. The moderator had a list of topics and everyone was requested to write down a couple of corresponding ideas on some index cards. The cards were placed on a board and people were allocated a certain number of votes to indicate which cards they felt were most important. This process helped the

group see where the group consensus was fairly easily.

It is probably not as important as how the project goals are created as is the thought process that was put into it. Each country has unique challenges and subtle (or not so subtle) market differences. Because of this, there probably is not a simple set of goals that all participants can use. But there may be a common set of things that should be considered.

General Considerations

- What should demand response do for your market (e.g. increase price elasticity, increase emergency reserves, etc.)? How would this improve the current situation?
- What should the stakeholder group try to accomplish (e.g. develop pilot project)? What is the definition of success? When should we reach that goal?
- What, if anything, is holding back current DR efforts?
- What worked well with current DR efforts and what could be improved?
- What things need to be understood in order to develop a good DR project?

Markets

- What products (energy, reserves, capacity, etc.) should demand response provide?
- Should a new class of products be considered for DR?
- What are the operational requirements associated with these product offerings? Should these requirements consider unique operating characteristics of the resource like other resources are (e.g. wind)?
- How should DR be offered into the market (e.g. bid/ask, price taker, etc.)?
- Based on your market structure, who has the right incentive to offer the service to consumers? Is the incentive strong enough to be interested in providing the service?
- Are more service providers desirable? If so, are there easy modifications to the current market structure that might widen the pool of potential suppliers?
- What consumer classes should be allowed to provide demand response? Should others be considered in the future as experience grows?

Regulatory Issues

- Who is eligible to offer DR services?
- Do the rules prohibit any natural participants? If so, should this be investigated?

- Are there any regulatory issues with activating onsite generation? If so, what are they (e.g. environmental permits)?
- Are there any regulatory challenges that currently impact demand response operation?

There are probably a hundred more questions that could be asked and discussed (e.g. how should DR performance be measured), but the purpose of this exercise is to establish the project objectives, not to design its ultimate deliverable. The collective body of knowledge gained from answering these questions, and others the group may think up, should provide strong insights into the direction you should head. Once this is accomplished, the project leader can review information from other Task XIII participants for similarities.

As a project, Task XIII will collect information on projects from many parts of the world. This information should provide insight into how other project teams handled certain situations. There will also be many areas, such as DR technologies, where work groups will assess the state of the practice and offer it up as a recommended solution. This information should aid the local team with working through many of its specific project issues.

Communications Plan

Once the project objectives have been established, the next logical step is to create a communications plan to build support for introducing or expanding the utilization of demand response in your market. At this phase of the project, the stakeholder group should focus on the first two levels of communication required. The Communications Toolkit contained in Appendix 3 can be used to develop a focused, effective communications campaign by your stakeholder group.

Work Plan

Once the project objectives have been established and a communication plan developed, the next logical step is to create a detailed project work plan. The work plan should address the tasks that will be completed, when they should be done, and who is responsible for completing the task.

The USA and Australia have provided the following work plans to be used as examples.

Project Homework Assignment

Please complete the following:

1. Create a diversified stakeholder group.
2. Discuss the questions listed in this section with your stakeholder group.
3. Draft a stakeholder group charter and project plan based on the responses to the questions.
4. Create a Communications Plan to build support for your objectives.
5. Share the charter, communications plan, and project plan with the Task XIII Operating Agent.

Insert Sample Project Objectives and Plan

USA Demand Response Coordination Committee (DRCC)

October 27, 2004

DRCC Project Plan for Task A – State Regional Coordination

A. Background

This task will examine the existing state of DR in the USA in terms of the market context within which programs are currently delivered (i.e. vertically-integrated monopoly markets versus restructured competitive markets), the role of different actors/stakeholders in its delivery, the level at which it is occurring (state, regional), and the role of policy makers in enabling and facilitating it.

The task will seek to identify the differences in program design and policies between and among different states and regions in the USA and analyze the reasons for such. A focus will be on where there are potential areas of commonality that would allow common business and policy models and frameworks to be developed that are linked to specific market situations and structures. A focus would also be on how wholesale markets and retail markets can and should be designed, linked and intertwined for the purposes of promoting economic DR.

The task will examine all of the regions in the USA, using existing applicable regional structures such as ISO control areas, Regional-State Committees (RSACs), and other appropriate regional delineators. Not all States will be examined individually, but rather states that are representative of the various combinations of traditional and restructured/competitive regimes that currently exist in the USA.

The task will be an ongoing task that will include meetings, dialogues and outreach efforts that bring together industry participants, stakeholders, policy makers, and DRCC Members.

While this task will benefit USA DRCC participants, it will be conducted in a manner that will collect existing country information that the U.S. is expected to provide to the IEA Demand Response Project with respect to the following IEA tasks:

Task 2 – Market Characterization
Task 4 – Costs, Benefits and Valuation

Task 6 – Barriers and Solutions

B. Plan

The DRRC shall design and implement a progressive series of meetings that will start at the regional level and culminate in a National Town Meeting on Demand Response (See Schedule 1; Appendix A – Guide Book Task Schedule).

The premise will be that DR is conceptually agreed to by the vast majority of stakeholders as "making sense" to pursue and as being a natural evolution of the electric industry over time. The questions are more of the "how, when, where, by whom, at what cost and how fast.

The objective shall be to identify similarities and differences among and between regions in how demand response is being thought about and dealt with. Subsequent to each of the regional discussions, representatives of each region will gather in Washington DC for a melding of the results of the regional events.

Specific items to be addressed will include:

1. Is the current pace of DR development in the region appropriate all things considered?
2. Who are the proponents and opponents of DR in the region and what are their arguments?
3. What are the barriers to DR? What policies foster or hamper DR development? What policies, if any have been put in place specifically to address DR?
4. How many models for DR development and delivery are there in the region? What kind of programs are in place?
5. Is the region truly a region for DR purposes? What should the region consist of? Should it follow RSAC boundaries?
6. What are the paths of least resistance to DR in the region?
7. What is needed in the region to help foster DR?
    a. Federal Policy Changes?
    b. State Policy Changes?
    c. Creation of a new entity?
    d. Further development of wholesale markets?
    e. Regional approaches?
    f. Funding?
    g. Technical Assistance?
    h. Information?
    i. education?

8. What are the best examples of DR in the region? Where has DR worked and not worked?

C. Design of Progressive Meetings (See Schedule 2; Appendix A – Guide Book Task Schedule)

Round 1 Private Invitation Meetings in each USA Region. These meetings will be held at a sponsor location as an in-kind contribution. They will be invitation only and designed to be a roundtable discussion involving a limited number of parties. A DRCC member will sponsor each regional event. One of the outcomes of the meeting will be the design of the regional workshop envisioned in Round 2. Discussions will be held at NARUC Annual Conference with key state regulators and staff to get buy-in and sponsorship.

Round 2 Regional Workshop Co-Sponsored by Regional Advisory Committee and DRRC. These meetings will be open meetings to all stakeholders in the region. They will be designed to provide some presentation of information, but also to allow dialogue among participants. Participants may be allowed to "vote" on how issues, challenges, barriers, etc should be addressed. The outcome will be a regional charter or platform for discussion of demand response within the region and at the National level in Round 3. These meetings may be Co-Sponsored by DRCC Members. These meetings may be held in Sponsor facilities as in-kind contributions or in other facilities appropriate for the meeting. Non-DRCC members may be Co-Sponsors Attendance may be fee-based.

Round 3 National Town Meeting to discuss Demand Response (See Schedule 2; Appendix A – Guide Book Task Schedule)

Sponsored by DOE/FERC/NARUC/DRCC - This meeting will be held with live participants in Washington but also with a live feed via TV and the Web to participants across the U.S. FERC facilities will be provided as an in-kind contribution. Remote participation may be fee-based. The primary participants in the meeting will be representatives that have been sent from each region based on Rounds 1 and 2.

D. Generic Targets for Round 1 Participants

1. Distribution and Transmission Companies
2. Regional System Operator
3. Retailer
4. Demand Response Provider
5. Large Customer
6. Small Customer Representative
7. Demand Response Technology Provider
8. State Regulators

E. New England Region Sponsors for Rounds 1 and 2

National Grid
ISO-NE (DR Working Group?)
NEDRI output to be considered

F. New York Region Sponsors for Rounds 1 and 2

NYISO (DR Working Group?)
NYSERDA/NYPA/Working Group

G. Mid-Atlantic Region

MADRI will serve as the regional vehicle
PJM DR Working Group?

H. Midwest Sponsors for Rounds 1 and 2
AEP
MISO (DR Working Group?)

I. Southeast Sponsors for Rounds 1 and 2
Southern Co

J. Southwest Sponsors for Rounds 1 and 2
Salt River Project

K. California Demand Response Research Center will serve as the regional vehicle
SCE/PG&E/SDG&E will be sponsors for Rounds 1 and 2

L. West Sponsors for Rounds 1 and 2
TBD
Western Governors Association will be solicited.

M. Northwest Sponsors for Rounds 1 and 2
TBD
BPA's Non-Wires Solutions Program will be solicited.

IEA Task 13: Demand Response Resources

AUSTRALIAN TEAM OBJECTIVES

September 15, 2004

General

The aim of the Australian Task 13 team is to guide IEA Task 13 work to make it useful in Australia.

BY: Using the tools produced to assess Australian DRR and the value of DDR Being able to identify and assess Barriers and market failures. Having access to Global best practice and technologies Reviewing the Market frameworks in Australia identifying opportunities, assessing solutions and proposing investment signals.

THEREBY Being able to inform decisions on Policy and the Changes needed to facilitate wider uptake of DRR.

Australian specific objectives

Sub Task 1 Country objectives and work plan To guide the IEA Task 13 Demand Response work, so that the outputs and tools generated by the Task are useful in Australia;

Australian Deliverable: *Agreed Australian specific objectives and a Work plan.*

OA Task13 Deliverable: *Overall project plan with quarterly updates.*

Sub Task 2 DR Resource Base and Market Characterization Establish a best practice data base for Australia

Australian Deliverable: *Information on Demand Response projects and services that have been implemented in Australia together with progress to date.*

OA Task 13 Deliverable: *From country information; review, analyze and report on Best Practice projects with relation to their Strength and Weaknesses in terms of application and knowledge enhancement.*

Sub Task 3 Market potential Ensure the tools to assess the magnitude of DRR provided by the Operating Agent are applicable in Australia. Use the tools to identify the opportunities for Demand Response in Australia's electricity market, and assess solutions, taking into account Australian market frameworks and investment signals

Australian Deliverable: *A State by State assessment of the magnitude of potential DRR in Australia using the tools.*

OA Task 13 Deliverable: *Deliver a tool kit, with training, suitable for use in Australia.*

Sub Task 4 Demand response valuation Ensure that the tools to assess the potential, benefits and value of Demand Response can be usefully applied to Australia's electricity market;

Australian Deliverable: *Carry out sample evaluations using the tools and hold one workshop to train country experts.*

OA Task 13 Deliverable: *Provide an integrated value model with training that can be applied in Australia.*

Sub Task 5 Role and Value of enabling technologies Catalogue of DRR technologies from the OA to ensure access to global best practice and technology for Australia.

Australian Deliverable: None.

OA Task 13 Deliverable: Database to be provided

Sub Task 6 Priorities, barriers and solutions To identify and assess the barriers and market failures those are limiting the uptake of Demand Response in Australia's electricity market;

Australian Deliverable: *Inform the policy debate in Australia with information obtained from this Task through participating organizations.*

OA Task 13 Deliverable: *Provide a Global view of barriers & solutions and rank the priorities for different types of markets.*

Sub Task 7 Develop DRR Network methods and

deploy. Website to hold all information by Operating Agent

Australian Deliverable: None OA Task 13 Deliverable: Deliver and maintain an up-to-date web portal and related services

Sub Task 8 Deliver product and intellectual property

Australian Deliverable: None OA Task 13 Deliverable: Carry out a Workshop in Australia at the conclusion of the Task.

NOTES