NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

Consideration of Comments

Demand Response Functions and Entities

The Functional Model Working Group (FMWG) thanks all commenters who submitted comments on the "Report on Assessing the Need for Introducing Demand Response Functions and Entities to the NERC Reliability Functional Model." The report was posted for a 30-day public comment period from February 13, 2012 through March 14, 2012. There were 40 sets of comments, including comments from approximately 64 different people from approximately 49 companies representing all 10 of the Industry Segments as shown in the table on the following pages.

If you feel that your comment has been overlooked, please let us know immediately. Our goal is to give every comment serious consideration in this process! If you feel there has been an error or omission, you can contact the Vice President and Director of Standards, Mark Lauby, at 404-446-2560 or at mark.lauby@nerc.net. In addition, there is a NERC Reliability Standards Appeals Process.[1]

[1] The appeals process is in the Reliability Standards Development Procedures: http://www.nerc.com/standards/newstandardsprocess.html.

Summary Consideration of All Comments Received

1. The majority of commenters agree with Conclusion 1. From the minority set of commenters that disagree with this conclusion, the Functional Model Demand Response Advisory Team (FMDRAT) assesses that the disagreement might have been attributed to the lack of elaboration in the report that the conclusion was made based on the following three aspects of Demand Response (DR):

   a. The unintended MW tripped or not tripped due to misoperation (mis-performance);
   b. the hardware or facility that provides the mechanism for tripping loads that participate in a DR program; and
   c. the aggregating of DR as a service, which is purely a commercial/business arrangement.

   From a MW change perspective, DR mis-performance does have some impact on Bulk Electric System (BES) but such an impact is not expected to be at a level that will create Adverse Reliability Impact for which there is no remedy. This assessment is based on FMDRAT members' experience with managing DR programs and accounting for DRs in operations and planning assessments. From a hardware/facility perspective, the unintended loss of DR is no different from losing a bus bar tripping all the loads connected to it, or from being inadvertently initiated by a common control scheme or device (other than the UFLS relay which can involve multiple bus bars). From an aggregation perspective, the FMDRAT assesses that this is purely a commercial or business service arrangement, which falls outside of the scope of planning or operating reliability.

2. The majority of commenters agree with Conclusion 2. Several commenters suggest that reliability standards need to be put in place to mandate inclusion of DR in resource planning and in development of plans for reserves, and to obligate DRs to provide the agreed amount of reserves.

   The FMDRAT assesses that, in general, DR is included in the models and forecasts just like any other type of resource, *e.g.* generators. Such inclusion is to facilitate assessment of future performance, and identification of potential transmission constraints or resource inadequacy. The conclusion reached in the DR report does not prohibit any entities from including DR in their planning or operational planning assumptions. However, like generators, there is no assurance that the modeled or forecasted resource level will be provided in real time.

   At present, there are no reliability standards that enforce Generator Operators to produce at the forecast, bid or requested level. Their obligations are enforced by market rules or other market mechanisms. The FMDRAT does not see a need to adopt a different approach for DRs.

   NERC Reliability Standards currently hold Balancing Authorities fully responsible for maintaining, implementing and deploying operating reserves appropriate to their areas. There are no

requirements for any specific resource to perform; rather, they are expected to comply with the BA's performance criteria. (*See* BAL Standards on maintaining operating reserves, DCS criteria, maintaining system frequency.) If standards need to be developed for resources providing reserves, they need to be developed for all types of resources — generation and DR.

3. The majority of the commenters agree with Conclusion 3. Some commenters raised a concern that in certain regions, the amount of certain DR-supplied operating reserves is at a constant level in long term assessments, based on the amount that individual market rules allow for procurement of this service. To the extent that this figure is discounted, that discount appears to be based not on probability of future availability, but instead on performance levels in regional criteria and historical participation. Other DR services may be subject to different analyses.

   The FMDRAT assesses that the real question is whether DR is properly accounted for in planning, including whether discount factors or probability analyses are applied to the accounting of DR in long-term planning documents. Some regions and organized markets have established a process to account for DR inclusion in their planning processes. There does not appear to be a need for standardizing this approach continent-wide or region-wide as it can be region or market-specific.

4. The majority of commenters either agreed with the assertion in Conclusion 4, or disagreed but qualified that DR would become more critical over time. The FMDRAT believes this to be an entirely possible outcome but points out that this report concerns the current, and static, point in time. The FMDRAT emphatically agrees that this is an area that must be revisited periodically. This does not mean that DR has less value than other resources. Rather, the FMDRAT concludes that DR is an emerging resource, and that market mechanisms exist which provide grip operators with the economic flexibility to draw on other resources in the event DR falls short in a particular response.

   Further evidence supporting this conclusion is the use of performance models by virtually every ISO and local Load Serving Entities which compensate for potential uncertainty by devaluing enrolled DR capability for planning purposes. The FMDRAT believes that these models will become more rigorous over time and with improved data. Unlike renewable energy, there is no mandate for specified DR contribution levels. For example, 30 states have renewable portfolio standards requiring specific amounts of generation by a date certain. No state or federal entity has set similar standards for DR. As a result, DR exists as a viable resource only as long as it proves its worth and does so on a year by year basis. Unlike generation, DR can be removed from a market relatively quickly and with no environmental impact.

   The fundamental question is whether any known entities count on DR as a critical component of operational plans. The FMDRAT could not find any evidence of this. The evidence suggests that DR is a valuable and important component of markets, but not that those markets could not be served if DR were not available or if it performed inadequately.

5. The majority of the commenters agree with Conclusion 5. From the minority set of commenters that disagree with this conclusion, the FMDRAT assesses that the disagreement appears to be due to lack of clarity in the report regarding the following issues:

   a. Treatment of DR and Generation as regards reliance on business or commercial arrangements;
   b. the entities responsible for ensuring continued BES reliability in the face of increasing reliance on DR; and
   c. the physical differences between DR and Generation.

   The FMDRAT is not proposing to treat DR differently from Generation in regards to reliance on business or commercial arrangements. The basis for comparison between generators and DR is the MW adjustment in response to market mechanism or instructions or requests. There currently do not exist any reliability standards that mandate generators to produce at the bid or requested or committed levels. Similar to generators' obligations, having reliability standards to further enforce business or commercial arrangements would be unnecessary and might well become a disincentive for loads participating in DR programs.

   The FMDRAT does not suggest that DR resources play no role in preserving the reliability of the BES; it only suggests that the Adverse Reliability Impact created by DR's mis-performance is duly addressed by the entities that account for DR in their resource adequacy/reserve assessments. The FMDRAT believes that existing functional entities (most likely the BA or RP) should be accountable for ensuring the DR provision level is assessed or even limited to ensure reliability. It does not demonstrate the need for having a DR function or DR functional entity.

   Finally, there are physical differences between a generator as a machine and DR as a service provider or DR as a load. The basis for registering Generator Owners and Generator Operators is predicated from the need to perform specific reliability tasks on the generators to support and ensure reliability, as presented in the Functional Model. The basis for having standards for Generator Owners and Generator Operators is the recognition of the physical impacts that generators may have on the BES when they respond to system events, and react to control signals. This type of reaction and response to system conditions does not exist in DR service arrangements. DR is essentially a load that offers a curtailment option; there is no unique or special performance or seasonal capability on the physical aspects of the DR as a load that is not already available through obligations imposed on the LSEs.

6. The majority of the commenters agree with Conclusion 6. From the minority set of commenters that disagree with this conclusion, the FMDRAT assesses that the disagreement appears to be due to a disparity among commenters in their awareness of the role of DR in various regions,

particularly in the context of registration and qualification requirements, performance metrics, and other associated market rules that pertain to grid reliability. The FMDRAT does not challenge the assumption that the emerging presence of DR as a component in regional operations and planning may eventually create the need for a NERC Functional Entity and, potentially, standards that are specific to DR resources. The FMDRAT contends, however, that this day has not yet arrived and that it would be premature, and potentially harmful to a nascent industry, to attempt to write national standards at this time. In regions where DR is eligible to provide services that require spontaneous response to system changes, market rules in place are more than adequate to ensure performance. Such rules are specific to the unique needs of the region, as they should be, and penalties for non-performance have proven more than sufficient to ensure delivery of the services contracted for.

7. The majority of commenters agree with the recommendations made in the DR report. Several commenters felt that the progress of DR development should be monitored with a threshold established for including DR in the Functional Model, but such actions are beyond the scope of the FMDRAT. The FMWG will decide future steps for adding DR to the Functional Model which could include establishing such a threshold.

   Several commenters felt that inclusion in the Functional Model was necessary to make reliability standards applicable to DR entities, but this may be a misconception. Inclusion in the Functional Model is not necessary for an entity to be held responsible for reliability standards.

Index to Questions, Comments, and Responses

The Industry Segments are:

1 — Transmission Owners
2 — RTOs, ISOs
3 — Load-serving Entities
4 — Transmission-dependent Utilities
5 — Electric Generators
6 — Electricity Brokers, Aggregators, and Marketers
7 — Large Electricity End Users
8 — Small Electricity End Users
9 — Federal, State, Provincial Regulatory or other Government Entities
10 — Regional Reliability Organizations, Regional Entities

Group/Individual	Commenter	Organization	Registered Ballot Body Segment									
			1	2	3	4	5	6	7	8	9	10
1. Group	Albert DiCaprio	PJM		X								

	Additional Member	Additional Organization	Region	Segment Selection
1.	Tom Bowe	PJM	RFC	2
2.	Bill Harm	PJM	RFC	2
3.	Catherine Wesley	PJM	RFC	2

2. Group	David Thorne	Pepco Holdings Inc & Affiliates	X		X							

	Additional Member	Additional Organization	Region	Segment Selection
1.	Will Lowe	Pepco Holdings Inc	RFC	1, 3
2.	Stephen L Sunderhauf	Pepco Holdings Inc	RFC	

3. Group	Chris Higgins	Bonneville Power Administration	X		X		X	X				

	Additional Member	Additional Organization	Region	Segment Selection
1.	Kathryn	Pruder Scurggs	WECC	3, 5, 6
2.	Rod	Kelley	WECC	1, 3, 5, 6

Group/Individual	Commenter	Organization	Registered Ballot Body Segment									
			1	2	3	4	5	6	7	8	9	10

3.	Christopher	Allen	WECC	3
4.	Erika	Doot	WECC	3, 5, 6
5.	Don	Watkins	WECC	1
6.	Rebecca	Berdahl	WECC	3
7.	Frank	Brown	WECC	3, 5, 6
8.	Jason	Gates	WECC	3, 5, 6
9.	Lee	Hall	WECC	3, 5, 6

4.	Group	Frank Gaffney	Florida Municipal Power Agency	X		X	X	X	X				

	Additional Member	Additional Organization	Region	Segment Selection
1.	Tim Beyrle	City of New Smyrna Beach	FRCC	4
2.	Jim Howard	Lakeland Electric	FRCC	3
3.	Greg Woessner	Kissimmee Utility Authority	FRCC	3
4.	Lynne Mila	City of Clewiston	FRCC	3
5.	Joe Stonecipher	Beaches Energy Services	FRCC	1
6.	Cairo Vanegas	Fort Pierce Utility Authority	FRCC	4
7.	Randy Hahn	Ocala Utility Services	FRCC	3

5.	Group	Jason Marshall	ACES Power Marketing Standards Collaborators						X				

	Additional Member	Additional Organization	Region	Segment Selection
1.	Chris Bradley	Big Rivers Electric Corporation	SERC	1
2.	Bob Solomon	Hoosier Energy	RFC	1
3.	James Jones	AEPCO/SWTC	WECC	1, 4, 5
4.	Michael Brytowski	Great River Energy	MRO	1, 3, 5, 6

6.	Group	John Moura	NERC Staff Technical Review										
No additional members listed.													
7.	Individual	Glen Thomas	PJM Power Providers Group										
8.	Individual	John Hughes	Electricity Consumers Resource Council (ELCON)	X		X		X	X	X	X		
9.	Individual	Emily Pennel	Southwest Power Pool Regional Entity										X
10	Individual	Jack Cashin	Electric Power Supply Association					X	X				

Group/Individual		Commenter	Organization	Registered Ballot Body Segment									
				1	2	3	4	5	6	7	8	9	10
11	Individual	Brent Ingebrigtson	LG&E and KU Services	X		X		X	X				
12	Individual	Abraham Silverman	NRG Energy, Inc. ("NRG")			X	X	X	X				
13	Individual	David Proebstel	Clallam County PUD No.1			X							
14	Individual	Keira Kazmerski	Xcel Energy	X		X		X	X				
15	Individual	Russ Schneider	Flathead Electric Cooperative, Inc.			X	X				X		
16	Individual	Larry Raczkowski	FirstEnergy Corp	X		X		X	X				
17	Individual	Michael Falvo	Independent Electricity System Operator		X								
18	Individual	Paul Kiernan	New York Independent System Operator		X								
19	Individual	John Delucca	Lee County Electric Cooperative	X		X							
20	Individual	Julie Lux	Westar Energy	X		X		X	X				
21	Individual	Joe Petaski	Manitoba Hydro	X		X		X	X				
22	Individual	Mark Henry	Texas Reliability Entity										X
23	Individual	Thad Ness	American Electric Power	X		X		X	X				
24	Individual	Scott McGough	Georgia System Operations			X							
25	Individual	Laura Lee	Duke Energy	X		X		X	X				
26	Individual	Sylvain Clermont	Hydro-Quebec TransEnergie									X	
27	Individual	Edward Davis	Entergy Services	X		X		X	X				
28	Individual	Andrew Z. Pusztai	American Transmission company, LLC	X									
29	Individual	Jason Snodgrass	Georgia Transmission Corporation	X									
30	Individual	Michelle R. D'Antuono	Ingleside Cogeneration LP					X					
31	Individual	Mike Gentry	Salt River Project	X		X		X	X				
32	Individual	Patti Metro	National Rural Electric Cooperative Association (NRECA)	X		X	X						
33	Individual	Don Schmit	Nebraska Public Power District	X		X		X					
34	Individual	Steven Huber	Public Service Enterprise Group	X		X		X	X				
35	Individual	Matthew F. Goldberg	ISO-NE		X								

Group/Individual		Commenter	Organization	Registered Ballot Body Segment									
				1	2	3	4	5	6	7	8	9	10
36	Individual	Brett Holland	Kansas City Power & Light	X		X		X	X				
37	Individual	H. Steven Myers	ERCOT ISO		X								
38	Individual	Maggy Powell	Constellation Energy Commodities Group						X				
39	Individual	Charles Yeung	Southwest Power Pool - RTO		X								

1. **Do you agree with Conclusion (1) that compared to sudden load increase and generator tripping, DR's spontaneous performance or failure to perform as instructed does not pose adverse reliability impacts on the BES for which there is no recourse? If not, please explain in the comment area.**

Summary Consideration:

The majority of the commenters agree with this conclusion. From the minority set of commenters that disagree with this conclusion, the FMDRAT assesses that the disagreement might have been attributed to the lack of elaboration in the report that the conclusion was made based on the following three aspects of DR:

a. **The unintended MW tripped or not tripped due to misoperation (mis-performance);**
b. **the hardware or facility that provides the mechanism for tripping loads that participate in a DR program; and**
c. **the aggregating of DR as a service, which is purely a commercial/business arrangement.**

From a MW change perspective, DR mis-performance does have some impact on BES but such an impact is not expected to be at a level that will create Adverse Reliability Impact for which there is no remedy. This assessment is based on FMDRAT members' experience with managing DR programs and accounting for DRs in operations and planning assessments. From a hardware/facility perspective, the unintended loss of DR is no different from losing a bus bar tripping all the loads connected to it, or from being inadvertently initiated by a common control scheme or device (other than the UFLS relay which can involve multiple bus bars). From an aggregation perspective, the FMDRAT assesses that this is purely a commercial or business service arrangement, which falls outside of the scope of planning or operating reliability.

Organization	Yes or No	Question 1 Comment
PJM	Yes	
Pepco Holdings Inc & Affiliates	Yes	
Bonneville Power Administration	No	BPA believes that the FMWG needs to re-analyze the DR's spontaneous performance to determine if it fits into the NERC functional model, especially in the case where an entity with large amounts of DR of a common mode element vs. substantial loss mode.
Response: The FMDRAT in its deliberation has repeatedly assessed the potential Adverse Reliability Impacts of DR's failure to		

Organization	Yes or No	Question 1 Comment
perform or spontaneous performance (hereby collectively called mis-performance), from a MW loss perspective, based on members' actual experience with managing DRs. In these analyses, there was no indication that any such mis-performance would result in Adverse Reliability Impact on the BES for which there was no recourse, i.e. measures that can be immediately applied to curb any adverse impacts as a result of the mis-performance.		
Florida Municipal Power Agency	Yes	
ACES Power Marketing Standards Collaborators	Yes	To answer this question, the drafting team needs to define what is meant by demand response. NERC has defined Demand-Side Management which essentially includes all activities designed to limit load or influence the amount and timing of use. As a result, Demand-Side Management would include direct load control (i.e. air conditioners, hot water heaters), interruptible customers (i.e. primarily industrial customers), real-time pricing (i.e. some utilities have established these programs outside of an organized market) and demand response programs as established in many markets and that are designed to respond to economical signals. If the drafting team intended to focus on demand response that is incentivized by economic signals, then we agree that it does not pose an adverse reliability impact. If traditional load control and interruptible customers were intended to be included, then it is possible for an adverse reliability impact to occur because these are generally counted upon for capacity and energy deficient situations. Of course, in those situations, load shed would still be available. Our selection of the "Yes" checkbox assumes the drafting was truly focused on demand response that is incentivized by economic signals.
Response: The FMDRAT's focus was on the MW change due to mis-performance of DR and the DR arrangement that is incentivized by economic signals or contractual compensation. With respect to the load management measures mentioned in the comments, the FMDRAT in its deliberation has repeatedly assessed the potential Adverse Reliability Impacts of DR's failure to trip or spontaneous, unintended tripping from a MW loss perspective, based on members' actual experience with managing DRs. In these analyses, there was no indication that any such mis-performance would result in Adverse Reliability Impact on the BES for which there was no recourse.		
ACES Power Marketing Standards Collaborators	Yes	To answer this question, the drafting team needs to define what is meant by demand response. NERC has defined Demand-Side Management which essentially includes all

Organization	Yes or No	Question 1 Comment
		activities designed to limit load or influence the amount and timing of use. As a result, Demand-Side Management would include direct load control (i.e. air conditioners, hot water heaters), interruptible customers (i.e. primarily industrial customers), real-time pricing (i.e. some utilities have established these programs outside of an organized market) and demand response programs as established in many markets and that are designed to respond to economical signals. If the drafting team intended to focus on demand response that is incentivized by economic signals, then we agree that it does not pose an adverse reliability impact. If traditional load control and interruptible customers were intended to be included, then it is possible for an adverse reliability impact to occur because these are generally counted upon for capacity and energy deficient situations. Of course, in those situations, load shed would still be available. Our selection of the "Yes" checkbox assumes the drafting was truly focused on demand response that is incentivized by economic signals.
Response: Please see response to the comment submitted by ACES Power Marketing Standards Collaborators.		
NERC Staff	No	Overall comments attached
PJM Power Providers Group		Please see comments in Question 8
Electricity Consumers Resource Council (ELCON)	Yes	
Southwest Power Pool Regional Entity	No	When reserve margins are high and controllable demand response penetration is low in a region, SPP RE agrees with this conclusion. However, as reserve margins tighten, DR can become more critical for maintaining operating reserves and providing ancillary services which in turn could impact reliability.
Response: The FMDRAT agrees that DR plays an important role in providing operating reserve (and in capacity planning) and as such, contributes to maintaining BES reliability. Conclusion (1) does not suggests that DR does not have any reliability impact; it only suggests that DR's mis-performance does not pose Adverse Reliability Impacts on the BES for which there is no recourse, i.e., measures that can be readily applied to curb any adverse impacts as a result of the misoperations. This conclusion was established after a survey of existing planning and operating practices in organized and non-organized markets, which indicated that Resource Planners and Balancing Authorities always develop recourses to guard against DR's failure to perform.		

Organization	Yes or No	Question 1 Comment
Electric Power Supply Association		EPSA cannot answer this question with a definite yes or no as additional factors critically impact how DR is defined and is participating as a resource on the Bulk Electric System. Therefore, please refer to answer to Question #8 for a full explanation of EPSA's perspective on the report, its conclusions and recommendations.
Response: Please see our response under Question 8.		
LG&E and KU Services	Yes	
NRG Energy, Inc. ("NRG")	No	NRG strongly disagrees with Conclusion (1), as it appears premised on an outdated assumption that DR will never be a sufficient part of the market to cause an adverse reliability impact on the BES. In fact, many parts of the country are already relying heavily on DR to support system reliability, including the provision of both "active" and "passive" products. This reliance on DR is expected to continue growing in future years as FERC continues its efforts to integrate DR into the organized and non-organized markets on an equal basis with generation. Further, the Report's finding that there is "recourse" for DR's failure in the form of penalties levied under commercial arrangements or contractual agreements and because of the penalties, reliability standards are not needed to force DR's compliance with its commercial agreements (Report at 3.4.), undercuts the rationale for subjecting generators to the reliability standards. Generation is subjected to the same financial penalties should it not fulfill its commercial and/or contractual arrangements. If because of the penalties, reliability standards are not necessary to achieve the desired DR performance, reliability standards are also not necessary to force generations' compliance with commercial and contractual obligations. If Conclusion (1) is not changed, there will be an irreconcilable conflict between NERC's mission to preserve the reliability of the BES and FERC's mandate that DR providers be able to supply operating reserves and capacity service on an equal basis with conventional generation. If NERC were to exempt all DR providers from registration, regardless of their size or market participation, there would be a major hole in NERC's ability to oversee the reliability of the BES.

Organization	Yes or No	Question 1 Comment
Response: The FMDRAT agrees that DR plays an important role in providing operating reserve (and in capacity planning) and as such, contributes to BES reliability. Conclusion (1) does not suggests that DR does not have any reliability impact; it only suggests that DR's mis-performance does not pose adverse reliability impacts on the BES for which there is no recourse, i.e., measures that can be readily applied to curb any adverse impacts as a result of the misoperations, NOT in the form of penalties that the commenter suggested. **The FMDRAT agrees that generators may be subjected to financial penalties should they not fulfill their commercial and/or contractual arrangements in terms of generation and reserve level. However, such obligations are governed by commercial or other contractual agreements, not by reliability standards. At present, there are no reliability standards that enforce generators to generate or provide reserve at the committed levels, and hence their "failure to generate" is not penalized due to failure to comply with reliability standards. This is consistent with the FMDRAT's proposal that DR's failure to perform is subject to penalties associated with the contractual or commercial arrangements.** **There are other performance attributes of a generator that are subjected to reliability standards. These attributes are associated with a generator's physical characteristics whose performance can have an impact on BES performance, such as data and model verification, protective relay settings, protection coordination, maintenance and testing, voltage control, equipment status reporting, etc. These attributes are not associated with the generation level – the very parameter with which the DR's expected performance is compared.**		
Clallam County PUD No.1	Yes	
Xcel Energy	No	No, it would seem that DR's performance (to the extent they are relied upon for reserves) could have identical consequences as generator trips or load increases. From the document: A DR asset or aggregator that functions according to operating conditions as defined by prior agreements poses no impact to reliability because its impacts are analyzed and assessed in the Operating Plans of the respective Transmission Operator (TOP) and Balancing Authority (BA).The TOP and BA plan in advance to meet system load, including load that is represented or controlled by DR entities. TOPs and Bas have knowledge of all relevant conditions and agreements, and plan operations accordingly for the load to be served with or without contribution from DR. It is not clear how a BA or TOP is going to be able to incorporate DR response into their plans, especially if the DR response is market driven.

Organization	Yes or No	Question 1 Comment
Response: While details on how a BA incorporates DR into its operational plans are not provided, the conclusions of this report were established after a survey of existing planning and operating practices in organized and non-organized markets, which indicated that Resource Planners and Balancing Authorities always develop recourses to guard against DR's failure to perform. TOP's approach was also not presented in detail in the report. Nonetheless, the report does indicate that "To the TOP, load is locational and it is based on historic load bus values. The DR control of load does not change the location of the basic load; rather, the availability of DR provides the TOP with another option to control congestion and to maintain reliability." It is the capability to implement DR as necessary to help mitigate transmission constraints that DR is factored into a TOP's operational plan.		
Flathead Electric Cooperative, Inc.	Yes	
FirstEnergy Corp	No	FirstEnergy is concerned by the Functional Model Working Group Demand Response Advisory Team (FMDRAT) conclusion that the amount of reliance placed upon Demand Response (DR) in the operations of a reliable system is minimal at best. DR, when used to address system emergencies, is a mandatory commitment to reduce load to maintain reliability due to supply shortage or other real-time system issues and as such, DR resources should be required to demonstrate the same level of responsiveness as a generator.
Response: In emergencies, DR and any firm loads can be curtailed to preserve reliability regardless of prior commercial or contractual arrangements. The FMDRAT's assessment was focused on the mis-performance of DRs, not on when it is shed in a controlled manner in which case there is little difference between shedding DR loads or firm loads. At present, the Load Serving Entity serves as a proxy entity for all loads and performs reliability functions such as providing load forecast and responding to instructions and directives issued by the Reliability Coordinators, Transmission Operators and Balancing Authorities.		
Independent Electricity System Operator	Yes	Observations 1 and 2 of the FMDRAT's report recognize that at present there does not appear to be any adverse reliability impact to the BES unique to DR resources or new risk for which is no recourse. The nuance of "new" or "unique" risks or impacts has been lost in the wording of Conclusion 1 which may give the impression that DR does not have the potential to impact the reliability of the BES. We suggest modifying Conclusion 1 to be consistent with the Observations and to provide better clarity.

Organization	Yes or No	Question 1 Comment
Response: Thank you for the suggestion. We will strengthen the report to drive home this notion.		
New York Independent System Operator	No	The fragment of the conclusion quoted here is extreme in its wording and should be revised. In NYISO's control area, demand response resources are either instructed to respond based on operating procedures or they are dispatched like other supply resources, depending on the market product. The notion of "spontaneous performance" is incongruous with how demand response is deployed in New York. Failure of demand response to perform can have an adverse impact on system reliability when a significant portion of the expected response does not materialize. However, because demand response resources vary in capability, the impact of underperformance of an individual demand response resource may be minimal. Through the design of its demand response programs, the NYISO has implemented procedures to enforce the obligations of demand response, including but not limited to: requesting availability information in advance of an event, reporting of extended periods when a demand response resource is not available, penalties, real-time metering provided to NYISO system operations, and derating of capability for future periods.
Response: Thank you for the suggestion. We will review and revise wording in the conclusion section as appropriate. The FMDRAT agrees that the design of the DR program is an effective means to enforce the obligations of demand response and to minimize potential adverse impact of underperformance of individual DR resource.		
Lee County Electric Cooperative	Yes	We concur with the advisory team assessment and recommendation NOT to create an additional Entity/Function."
Response: Thank you for the support.		
Westar Energy	Yes	
Manitoba Hydro	Yes	
Texas Reliability Entity	No	No, in the ERCOT Region, certain DR is identified for reserve duty and performs a significant role in Regional criteria, and at times may be a component of meeting Most Severe Single Contingency reserves. Other DR programs are not assigned such

Organization	Yes or No	Question 1 Comment
		duties.
Response: The FMDRAT does not dispute that depending on the region and market, some DR resources committed as real-time operating reserves may be obligated to perform under the rules established by the Balancing Authority and hence may be subject to penalties or sanctions for non-performance that are consistent with those applied to generators. However, participation by such DR resources, which are specific to each Balancing Authority for a region or market, are narrowly written to apply to the specific operational and reliability requirements of that region or market only. Such requirements vary widely across NERC regions, markets and service territories. This variation does not support the creation of a new entity in the Functional Model or any reliability standards to be applied continent-wide. Balancing Authorities that permit DR resources to provide operating reserves have developed and should continue to enforce the specific performance criteria applicable to their regions or markets.		
American Electric Power	No	Taken literally, Conclusion 1 negates the need for, and benefits of, Demand Response as it implies that load could always be shed which obviously is not the preferred course of action if and when other options exist.
Response: The FMDRAT agrees that load shedding is not the preferred course of action when other options exist. In a capacity shortage, it may be preferable to implement other actions such as reducing sales, purchasing, etc. before or in conjunction with initiating DR actions depending on the market prices. Any of these actions are preferred over shedding firm load. The FMDRAT will review Conclusion 1 and revise the wording as appropriate to avoid the misconception that DR does not provide any reliability benefit or operational flexibility.		
Georgia System Operations	Yes	One caveat: Only controllable, dispatch able DR is "instructed" by the operating authority to perform. Economic, dispatch able and non-dispatch able DR is not "instructed" by the operating authority.
Response: The FMDRAT agrees with this comment. The "instructions from operating authorities" include dispatch instructions and other mechanisms resulting from the dispatch algorithm employed by the Balancing Authority. We will review the report and clarify this notion, where appropriate.		
Duke Energy	Yes	
Hydro-Quebec TransEnergie	Yes	
Entergy Services	Yes	As with any component of a plan to respond to system events, the performance of any particular element or resource may or may not provide the relief planned.

Organization	Yes or No	Question 1 Comment
		Contingency plans and mitigation plans should include sufficient diversity to allow for reliability should one step not provide the needed amount of relief. As the FMDRAT report indicates, DR contracts include measures regarding the implication of non-performance when called upon.
Response: Thank you for the support.		
American Transmission company, LLC	No	The purpose of Operating Reserves is to prevent adverse reliability impacts, such as frequency collapse. Historically, Operating Reserves were added to system operations to protect against such adverse reliability impacts. If DRs are included in Operating Reserves, DRs operation and failure to perform, and the related impact on the reliable operation of the BES should be considered on par with other reserve resources (generation, UFLS, etc.) and, should be subject to reliability requirements to the same extent as other Operating Reserves.
Response: The FMDRAT agrees that if DR fails to perform when requested, there can be reliability impacts on the operations of the BES. At present, there are no reliability standards that enforce performance of resources (*e.g.* generators) that produce energy or provide reserve. On a comparable basis, we do not see a need to introduce reliability standards to enforce DR performance.		
Georgia Transmission Corporation	Yes	
Ingleside Cogeneration LP	Yes	Because Demand Response resources are generally used to supply system reserves or to self dispatch during periods of high electricity prices, there will not be a shock to the local system should it fail to engage as there could be with a potential frequency spike that results when an active generator is suddenly severed from the BES due to a circuit breaker trip.
Response: Thank you for the support.		
Salt River Project	Yes	
National Rural Electric Cooperative Association (NRECA)	Yes	NRECA agrees that DR as described in this report does not pose adverse reliability impacts on the BES.

Organization	Yes or No	Question 1 Comment
Response: Thank you for the support.		
Public Service Enterprise Group	No	Public Service Electric and Gas Company, PSEG Energy Resources & Trade LLC and PSEG Power LLC ("the PSEG Companies") do not agree with Conclusion (1) that DR's failure to perform does not pose an adverse impact on reliability. First, NERC is wrong in downplaying or minimizing DR's penetration levels. In fact, DR is rapidly becoming a significant source of generation capacity. In PJM, DR represents nearly 8% of the capacity the upcoming delivery year, and nearly 10% in the 2014/2015 forward capacity auction delivery year. NERC's 2011 Long-Term Reliability Assessment has noted that DR increased significantly from 30,000 MW in 2010 to 43,000 MW in 2011. Furthermore, NERC expects DR to increase to 50,000 MW by 2016. This amount represents nearly Â½ of the total nuclear capacity in the United States. Clearly, any resource representing such a large fraction of capacity should not be ignored by the Functional Model (FM). Second, DR is considered a resource by Transmission Planners in certain regions. For example, the PJM's Reliability Pricing Model (RPM) forward capacity market allows DR to participate as capacity resources. In the RPM construct demand resources therefore participate on an equal footing with generation and are considered in the transmission planning process. Furthermore, the RPM structure allows a demand resource provider to offer resources associated with behind-the-meter generation into the RPM. Since DR is considered a substitute for generation by Transmission Planners and Resource Planners and may displace traditional generating units, it meets one of the guiding principles of Version 5 of the FM such that "The Model must be complete, that is that it must include all reliability Tasks and the interrelationships between entities performing them." Third, the FMDRAT White Paper acknowledges that both generating capacity and DR are resources that participate in operating reserve markets; reserves which would be

Organization	Yes or No	Question 1 Comment
		activated with the sudden loss of generation or a sudden increase in load. Given that generating capacity and DR can both provide operating reserves, they both perform a role in ensuring BES reliability. Since generating capacity is included in the FM, DR, which performs a similar role, should also be included.
Response: **The commenter's focus is on the composite DR role while the report is focusing on the need to define a function and a functional entity. The FMDRAT agrees with the commenter that on a composite basis the role of DR is growing and the report agrees with that assessment. The report, however, is looking at the need to standardize every entity that provides DR (*i.e.,* Does every WalMart have to be standardized?).** **The report attempts to make that distinction and points to the concept of flexibility. Specific to the PJM market, PJM has introduced novel approaches to storage batteries and flywheels, as well as the more traditional processes and procedures used in DR. The FMDRAT believes that such approaches will continue to evolve and to standardize them at this time is viewed as a potential barrier to new approaches. The FMDRAT is concerned that the unintended consequences of standardizing processes and procedures may limit the innovations for DR. The FMDRAT is not dismissing the value of DR. Rather, the FMDRAT is concerned that well-meaning standards will discourage participation in DR programs.** **The commenter notes that there is concern over response characteristics. The FMDRAT recognizes the seeming dilemma posed by not mandating asset-specific standards and depending on the current standards that require the BAs and TOPs to be responsible for the performance of their "systems". But the reality is that generators are not mandated to generate or provide spinning reserve nor are they penalized by reliability standards for failing to deliver the indicated or committed resource or reserve level; it is the BA, TOP or RC that bears the responsibility for failing to secure energy balance and reactive capability to support transmission system performance. Yes, DR is part of PJM's spinning, but if the asset that bids into PJM's spinning market (note this is a market activity, PJM is still responsibly for the performance of its reserves) does not respond as required it is penalized according to established market rules, not reliability standards.**		
ISO-NE	No	As DR is treated comparably to other resources (e.g., as capacity resource), DR may have similar impacts.
Response: The FMDRAT agrees that DR may have similar impacts as other types of resources from a resource or capacity provision viewpoint. At present, there are no reliability standards that mandate these other resources (*e.g.* generators) to be providing		

Organization	Yes or No	Question 1 Comment
resources (*e.g.* generators must generate at the bid, instructed level or at rated capability). In addition, there are no reliability standards that mandate resources to remain online or available or always stay on line or in service or not trip when not asked to. The FMDRAT does not see a need to impose a reliability standard to enforce DR to always be available for "dispatch" or stay on line or not removed from service or not trip.		
Kansas City Power & Light	Yes	
ERCOT ISO	Yes	
Constellation Energy Commodities Group	Yes	
Southwest Power Pool - RTO	Yes	

2. Do you agree with Conclusion (2) that all responsible entities have some measures in place to guard against the possibility that a DR resource does not fulfill its obligations to provide the agreed amount of reserves. If not, please explain in the comment area.

Summary Consideration:

The majority of commenters agree with this conclusion. However, several commenters suggest that reliability standards need to be put in place to mandate inclusion of DR in resource planning and in development of plans for reserves, and to obligate DRs to provide the agreed amount of reserves.

The FMDRAT assesses that, in general, DR is included in the models and forecasts just like any other type of resource, *e.g.* generators. Such inclusion is to facilitate assessment of future performance, and identification of potential transmission constraints or resource inadequacy. The conclusion reached in the DR report does not prohibit any entities from including DR in their planning or operational planning assumptions. However, like generators, there is no assurance that the modeled or forecasted resource level will be provided in real time.

At present, there are no reliability standards that enforce Generator Operators to produce at the forecast, bid or requested level. Their obligations are enforced by market rules or other market mechanisms. The FMDRAT does not see a need to adopt a different approach for DRs.

NERC Reliability Standards currently hold Balancing Authorities fully responsible for maintaining, implementing and deploying operating reserves appropriate to their areas. There are no requirements for any specific resource to perform; rather, they are expected to comply with the BA's performance criteria. (*See* BAL Standards on maintaining operating reserves, DCS criteria, maintaining system frequency.) If standards need to be developed for resources providing reserves, they need to be developed for all types of resources — generation and DR.

Organization	Yes or No	Question 2 Comment
PJM	Yes	
Pepco Holdings Inc & Affiliates	Yes	
Bonneville Power Administration	Yes	
Florida Municipal Power Agency	Yes	

Organization	Yes or No	Question 2 Comment
ACES Power Marketing Standards Collaborators	Yes	Our answer assumes that demand response is only that part of Demand-Side Management that responds to economic signals. We agree that all responsible entities either have measures in place or are required to have other measures by the NERC standards should demand response not provide agreed upon reserves. For example, BAs and TOPs are required to have load shedding plans per EOP-003. BAs must also have capacity and energy plans per EOP-002. They may also have interruptible customers and direct load control. In addition, FERC has provided a very clear signal to demand response providers that they must comply with tariffs. A demand response provider entered into a settlement agreement with FERC for failing to comply with PJM's tariff by not responding to calls for reserves (133 FERC Â¶ 61,089). The settlement calls for the entity to pay a civil penalty of $500,000 and disgorge $2,258,127 of profits and interest. There was also personal liability of $50,000 in a related settlement (138 FERC Â¶ 61,018).
Response: **Thank you for the support. The referenced PJM incident was handled as part of the PJM tariff and not as a NERC standard violation. This is an important distinction. The FMDRAT is not implying that DR may never become a NERC standard issue, but at this time DR obligations are being more aptly handled by market rules and as such, there is not a need to duplicate enforcement by developing reliability standards.**		
NERC Staff	No	
PJM Power Providers Group		Please see comments in Question 8
Electricity Consumers Resource Council (ELCON)	Yes	
Southwest Power Pool Regional Entity	No	SPP RE agrees that responsible entities (Balancing Authorities, Transmission Operators and/or Reliability Coordinators) have measures in place should DR fail to fulfill their obligations. However, the measures are primarily financial or market-based incentives and they do not fall under NERC's responsibility for maintaining BES reliability. While these measures should incent a DR provider to meet their obligations, the application of DR applicable reliability standards, when appropriate,

Organization	Yes or No	Question 2 Comment
		would provide further assurance that DR providers meet their obligations.
Response: Given Conclusion (1) that DR's mis-performance does not pose adverse reliability impacts on the BES for which there is no recourse, the FMDRAT questions the need to create reliability standards to "provide further assurance that DR providers meet their obligations." At present, Generator Operators are not mandated to produce at the bid or requested level; their obligations are enforced by market rules or other market mechanisms. The FMDRAT does not see a need to adopt a different approach for DRs.		
Electric Power Supply Association		Please refer to answer to Question #8
LG&E and KU Services	Yes	It should be stressed that DR resources are not generally used as reserves in non-market operating areas. DR resources are becoming increasingly significant sources of operating and capacity reserves in ISO/RTO markets. In PJM, DR also provides area regulation services. We agree with the report recommendation that as DR resources take on added significance in such markets, NERC should reevaluate whether some reliability requirements should apply to DR aggregators.
Response: **PJM is an example of extending the boundaries for DR without the use of federally mandated standards. PJM and others continue to seek new ways to incorporate DR. The FMDRAT's perspective is that standardization would unnecessarily limit those initiatives.**		
NRG Energy, Inc. ("NRG")	No	Because of the lack of operational standards for DR, it is unclear how responsible entities fulfill their obligations to provide reserves. It is clear that from the planning standards, DR is required to be taken into consideration in the planning horizon, but how DR resources are utilized in the operational horizon is a black box. For example, the MOD standards (specifically, MOD-016 through MOD-021) require various registered entities to include DR in their models and forecasts. In fact, the purpose of the standards is described as "to assist in proper real-time operating, Load information related to controllable Demand-Side Management (DSM) programs is needed." As a further example, the planning standard's incorporation of DR is reflected below: o MOD-016 -The standard requires planning authorities and regional

Organization	Yes or No	Question 2 Comment
		reliability organizations to have documentation identifying the scope and details of the actual and forecast demand side management data to be reported for system modeling and reliability analyses. o MOD-021 - Requires LSE's, TP's and Resource Planner's forecasts to document how the Demand and energy effects of DSM programs (such as conservation, time-of-use rates, interruptible Demands, and Direct Control Load Management) are addressed. As discussed in Question 5 and 8, the measures that responsible entities have in place to guard against the failure of DR resources are, by FERC mandate, comparable to the measures that responsible entities have in place to guard against the failure of a generation resource. Each ISO and RTO is under a FERC mandate to allow DR resources to supply energy, capacity and reserve service on an equal basis with generation. However, while the planning standards require the inclusion of DR, there is simply a gap when it comes to the operational standards and the unknown extent to which DR fulfills its obligations. To fill this gap, DR should be subject to requirements along the lines of those set forth in Appendix A to the draft report.
Response: In general, DR is included in the models and forecasts just like any other type of resource, *e.g.* generators. Such inclusion is to facilitate assessment of future performance, and identification of potential transmission constraints or resource inadequacy. The conclusion reached in the DR report does not prohibit any entities from including DR in their planning or operational planning assumptions. However, like generators, there is no assurance that the modeled or forecasted resource level will be provided in real time. At present, there are no reliability standards that enforce Generator Operators to produce at the forecast, bid or requested level. Their obligations are enforced by market rules or other market mechanisms. The FMDRAT does not see a need to adopt a different approach for DRs.		
Clallam County PUD No.1	No	Clallam County PUD does not employ DR at this time.
Response: Thank you for your comment.		
Xcel Energy	No	We would agree that the standards indicate that resources used for reserves have reasonable measures to ensure performance, however, entities would ultimately have to rely on load shed if any resource (DR or otherwise) cannot fulfill its obligation such that all other options are exhausted.

Organization	Yes or No	Question 2 Comment
Response: The FMDRAT agrees that if an entity runs out of options including tripping DR, then shedding firm load may well be the last resort to ensure reliability. However, this does not support the creation of a reliability standard to enforce DR tripping when needed when (a) there are commercial arrangements to obligate DR to perform and (b) there currently do not exist any standards that enforce generators to produce at the bid or requested levels.		
Flathead Electric Cooperative, Inc.	Yes	
FirstEnergy Corp	Yes	However, the alternative measures are not ideal such as dropping of firm load. As the industry places an increased reliance on DR, the commitment for DR to fulfill its obligations should also increase and those expectations should be reinforced through mandatory NERC reliability standards.
Response: The FMDRAT agrees that if an entity runs out of options including tripping DR, then shedding firm load may well be the last resort to ensure reliability. However, this does not support the creation of a reliability standard to enforce DR tripping when needed when (a) there are commercial arrangements to obligate DR to perform and (b) there currently do not exist any standards that enforce generators to produce at the bid or requested levels.		
Independent Electricity System Operator	Yes	While we agree with Conclusion 2, we reiterate our comment in response to Q1. In the future, the need may arise for requirements that ensure Balancing Authorities and Resource Planners account for the impacts of the DR resource in an appropriate and consistent manner, thereby minimizing potential risks to BES reliability. The need for these requirements could for example be considered within NERC Project 2009-05 - Resource Adequacy Assessments.
Response: Thank you. The FMDRAT will strengthen the report as suggested in the Independent Electricity System Operator's comment under Question 1. The FMDRAT will forward the suggestion to account for DR in resource assessment to NERC for inclusion in the issues data base for consideration by Project 2009-05.		
New York Independent System Operator	Yes	As stated above, the NYISO has implemented procedures to enforce the obligations of demand response.
Response: Thank you for the support.		

Organization	Yes or No	Question 2 Comment
Lee County Electric Cooperative	Yes	
Westar Energy	Yes	
Manitoba Hydro	Yes	
Texas Reliability Entity	No	No, it is conceivable that in some tight supply conditions, there is no recourse save declaring an emergency and possible firm load shed. In ERCOT, those entities that supply DR as part of operating reserves - perhaps a subset of all DR - are not backed up elsewhere with other reasonable, planned alternatives. DR that is qualified and commits to these reserve duties is expected to deploy.
Response: The FMDRAT does not disagree with this statement in any way, and stands by the assertion in the report that all responsible entities have adequate performance criteria and penalty structures in place. (*e.g.* ERCOT Protocols, Operating Guides, and PUCT Rules.) NERC Reliability Standards currently hold Balancing Authorities fully responsible for maintaining, implementing and deploying operating reserves appropriate to their areas. There are no requirements for any specific resource to perform; rather, they are expected to comply with the BA's performance criteria. (*See* BAL Standards on maintaining operating reserves, DCS criteria, maintaining system frequency.) If standards need to be developed for resources providing reserves, they need to be developed for all types of resources — generation and DR.		
American Electric Power	No	We believe that it would be better to properly identify those who perform DR-related duties by the creation of the DR functional group rather than placing existing and future DR requirements on existing functional groups whose primary duties do not involve DR. No one can predict what future DR requirements might be created, and without a DR functional group, those new requirements could be misapplied to existing functional groups. While it might be somewhat true that "responsible entities have some measures in place to guard against the possibility that a DR resource does not fulfill its obligations to provide the agreed amount of reserves", this does not mean that continuing in this manner is the best course of action to take. If no DR entities are created, further requirements would simply end up being absorbed by the existing functional entities, which already burdened with other obligations and requirements. Doing so might be considered appropriate within some regions but not for others, again making it preferable to create DR functional entities which would

Organization	Yes or No	Question 2 Comment
		provide much more consistency across regions. In addition, we are concerned that DR obligations might not be met at all by those who are not currently registered as NERC registered entities yet who are involved in DR activities.
Response: The FMDRAT agrees that no one can predict what future DR requirements might be created. However, until such a need is identified, creating a DR function and a DR functional entity seems unnecessary and premature. Please also note that a standard, if deemed necessary, can be created without first having a function and functional entity defined. **As indicated in the summary consideration, the perceived "DR entities" are those that provide an aggregation service. This is purely a business arrangement which does not have any material impact on BES reliability. The real impact of DR is its mis-performance, from a MW change viewpoint, but this issue is duly addressed when the FMDRAT reviewed the reliability impact before arriving at Conclusion (1), and in its response to industry comments.**		
Georgia System Operations	Yes	We agree that entities should have some measures in place to guard against the possibility that a DR resource does not fulfill its obligations to provide the agreed amount of reserves. As far as we know, all do.
Response: Thank you for the support.		
Duke Energy	Yes	
Hydro-Quebec TransEnergie	Yes	
Entergy Services	Yes	
American Transmission company, LLC	Yes	However, by implementing these measures, ATC believes it is duplicating the effort. This creates a situation such that non-DR resources become responsible for the DRs short comings. Also, consider the situation where the amount of reserves by the DR may not be the same as the non-DR resource.
Response: Thank you for the support.		
Georgia Transmission Corporation	Yes	
Ingleside Cogeneration LP	Yes	The contingency plans that Balancing Authorities and Transmission Operators develop must account for the possibility that a certain percentage of all reserve resources will

Organization	Yes or No	Question 2 Comment
		not respond when called. Therefore there will always be other options available if the DR operator does not reduce load when directed. Furthermore, the DR is under contract to execute their load reduction obligations. There are financial penalties that may be assessed for non-performance (as there generally are for generator non-performance), which would discourage such an action. Also, as more resources compete to participate in Demand Response programs, those with poor track records will lose their bids for future contracts.
Response: Thank you for the support.		
Salt River Project	Yes	
National Rural Electric Cooperative Association (NRECA)	Yes	NRECA agrees that all responsible entities have some measures in place to guard against the possibility that a DR resource does not fulfill its obligations to provide the agreed amount of reserves. Several examples of reliability standards that specifically address such safe guards are: EOP-001 which requires that "Each Transmission Operator and Balancing Authority needs to develop, maintain, and implement a set of plans to mitigate operating emergencies" with requirement R2.3 specifically addressing " a set of plans for load shedding"; EOP-002 which requires that Balancing Authorities have capacity and energy plans that include options for curtailing interruptible customers; and EOP-003 which requires Balancing Authorities and Transmission Operators to have load shedding plans.
Response: Thank you for the support.		
Public Service Enterprise Group	No	First, it is not clear which reliability functions the responsible entities discussed in Conclusion (2) are accountable for administering DR resources. There are a number of entities in the NERC functional model that are engaged in planning and reserve requirements. These include the Balancing Authority, Resource Planner, Transmission Planner, Planning Coordinator, and Reliability Coordinator. The interrelationships between the functions are a key component of the FM. For example, the Reliability Functional Model Technical Document notes: "The Generation Operator provides

Organization	Yes or No	Question 2 Comment
		information to the Resource Planner related to generator performance and availability. The Generator Operator provides maintenance schedules, generator status, and AVR status to the Transmission Operator. The Generator Operator receives notification of transmission system problems affecting its generator from the Transmission Operator or Reliability". It appears that the FMDRAT has only done a cursory assessment of the operational aspect of DR performance for two functions, the Balancing Authority (BA) and Transmission Operation (TOP), and concluded that load can be served with or without DR. The PSEG Companies believe that the FMDRAT may not have adequately evaluated the interrelationships between DR and the other reliability functions. Second, the conclusion that other entities specified in the current FM have measures in place to resolve the issues caused by the failure of DR to meet its obligations is unsupported. Resource Planners ensure sufficient resources are planned so that the failure of any resource (generator or DR) is addressed and reliability is maintained. Furthermore, Reliability Standard BAL-002 ensures that the Balancing Authority must have access to a Contingency Reserve to respond to disturbances. So Conclusion (2) is already addressed in NERC standards and therefore is not relevant to the discussion of whether DR entities should be added to the Functional Model. Rather, NERC should consider to what extent DR replaces other capacity resources, and whether that replacement has a potential long-term reliability impact. As noted in the Minority Views section of the White Paper, as more and more DR is included in the dispatch stack and in the planning and operating horizon, fewer real generation resources are required to meet the aggregate load obligations on the grid. In fact, in PJM studies, DR is assumed to available to the full extent that it is committed as a capacity resource. However, this performance standard is not necessarily always achieved. For example, in the July 20, 2011 load management event in PJM only about 91% of the MW of DR called upon was actually delivered in certain regions. Nor is there any assurance that any "extra" resources to address potential non-compliance by DR providers will be obtained through the RPM construct. In fact, the RPM procedures used for procuring sufficient capacity resources to meet the one-day in ten-year loss of load expectation do not impose any

Organization	Yes or No	Question 2 Comment
		obligation to procure capacity resources to offset the non-performance of DR capacity resources. Moreover, even if RPM does sometimes acquire more resources than the minimal amount needed to meet the reliability expectation for a one-day in ten-year loss of load probability, there is no assurance provided that a sufficient level of extra resources to offset non-performance by DR (which comprises up to 15% of the all capacity resources for at least one transmission zone in Delivery Year 2014/2015) will be available. Accordingly, it cannot be assumed that there will be extra capacity resources needed to offset non-performance by DR capacity resources for the purpose of capacity adequacy. Moreover, NERC should explain the basis for its conclusion that "DR's spontaneous performance or failure to perform as instructed does not pose adverse reliability impacts on the BES for which there is no recourse." How can it be assured, for example, given the longer-term implications of DR replacing generation resources, that there will be extra generation capacity available to make up for DR that does not show up when it is being relied upon to do so?

Response:

The commenter points to many interesting aspects of DR. The report does not maintain that DR never be assigned as a functional entity. Rather, the report asserts that the issue needs discussion and that as the product evolves then more deliberate decisions can be made.

To parse the issues raised:

Regarding Planning – the planners "assess" the forecast systems. In a deregulated environment the planner no longer ensures that sufficient "capacity" will be built – both FERC and NERC agree on that point. In the vertically integrated paradigm, a planner and BA and TOP may be a single corporate entity and for their purposes can enforce the assessed plans. But, in a deregulated environment such as an organized market, that link does not exist.

Markets do have rules and processes to incent the construction of assets, and markets do have methods to discount capacity (in some companies this is defined as "deliverability"). For example, PJM's RPM process is a market process that relates to PJM's approach to meeting standards. The RPM process has served PJM well but it may or may not serve others.

The FMDRAT report is viewing this subject from a deregulated environment and a continent-wide NERC standards perspective. If

Organization	Yes or No	Question 2 Comment
one supposes that PJM were capacity short (whether it were caused by DR or not), PJM planning may have forecasted that the system capacity would be sufficient but it is not. There is no federal or NERC penalty for not realizing the forecasted system. Who is at fault for assets not being built? NERC standards require that if there is a shortfall that the RC, TOP and BA shall have operating procedures in place to handle any emergency that arises. **The FMDRAT recognizes that DR be a capacity issue, but it is the FMDRAT's understanding that the Planning Coordinators and Resource Planners generally take DR's failure to materialize into account when developing long-term plans. Creating a DR function and a DR functional entity will not change the current role or responsibility of the Planning Coordinator or Resource Planners, or their current approaches to assess long-term plans concerning resource adequacy.** **The spontaneous non- response of one WalMart has as little impact on control as it does on planning, but the composite of the entire category will have such impact. The FMDRAT does not believe the commenter would suggest imposing new regulations on coal fired generation simply because the fuel type may be phased out by environmental regulations. The FMDRAT is suggesting that imposing a new functional entity because of the size of the entire category may be an overreaction at this time.** **Finally, the conclusions established in the report do not preclude any entities (or any standards assigning the responsibility to any entities) from assessing DR's MW effect in long-term planning, operations planning and real-time operation. However, such assessment does not create or support the need for defining a DR function and a DR functional entity.**		
ISO-NE	Yes	The relevance of this conclusion to the question presented (i.e., the establishment of DR functional model category) is not clear.
Response: This conclusion states that "all responsible entities have some measures in place to guard against the possibility that a DR resource does not fulfill its obligations to provide the agreed amount of reserves." This conclusion is relevant to the proposal that a DR function and functional entity do not have to be created at this time since the DR impact and obligations are already taken care of by presently defined functional entities.		
Kansas City Power & Light	Yes	
ERCOT ISO	Yes	
Constellation Energy Commodities Group	Yes	

Organization	Yes or No	Question 2 Comment
Southwest Power Pool - RTO	No	The FMDRAT report does not provide sufficient evidence to support this conclusion. Supporting data, in the form of survey results or other research, would have assisted in validating this conclusion. While I do believe the statement is true, the report offers nothing to support it.
Response: The report reflects results of the assessment by the FMDRAT and a survey of all members within the FMDRAT. Unfortunately, the survey was not conducted in a structured, formal and quantitative manner to provide the proposed statistics and track records. We will consider your proposal if and when a follow up assessment is performed in future years.		

3. Do you agree with Conclusion (3) that for long-term planning, most entities include contributions from DR to some extent, and that uncertainties associated with DR's long-term commitment to remain "dispatchable" are typically addressed by applying a discount factor or probability analysis to DR's availability in resource adequacy assessments? If not, please explain in the comment area.

Summary Consideration:

The majority of the commenters agree with this conclusion. However, some commenters raised a concern that in certain regions, the amount of certain DR-supplied operating reserves is at a constant level in long term assessments, based on the amount that individual market rules allow for procurement of this service. To the extent that this figure is discounted, that discount appears to be based not on probability of future availability, but instead on performance levels in regional criteria and historical participation. Other DR services may be subject to different analyses.

The FMDRAT assesses that the real question is whether DR is properly accounted for in planning, including whether discount factors or probability analyses are applied to the accounting of DR in long-term planning documents. Some regions and organized markets have established a process to account for DR inclusion in their planning processes. There does not appear to be a need for standardizing this approach continent-wide or region-wide as it can be region or market-specific.

Organization	Yes or No	Question 3 Comment
PJM	Yes	
Pepco Holdings Inc & Affiliates	Yes	
Bonneville Power Administration	Yes	BPA currently uses a "Planning Reserve Margin" but agrees with the long-term planning industry trend.
Response: Thank you for this information.		
Florida Municipal Power Agency	Yes	
ACES Power Marketing Standards Collaborators	Yes	Most transmission planners and planning authorities either currently have or are developing methodologies to consider demand response via probabilistic analysis. The remainder of transmission planners and planning coordinators do not count on the performance of demand response and plan to serve this load. While demand response programs are still developing, this is a conservative but reasonable

Organization	Yes or No	Question 3 Comment
		approach. Other transmission planners and planning coordinators in areas with more mature demand response programs, do consider the probability of demand response performance. In general, transmission planners and planning coordinators plan to serve all other forms of demand-side management such as load-control and interruptible customers because these are intended for emergency operations.
Response: Thank you for this information.		
NERC Staff	Yes	
PJM Power Providers Group		Please see comments in Question 8
Electricity Consumers Resource Council (ELCON)	Yes	
Southwest Power Pool Regional Entity	No	SPP RE agrees that most entities include DR contributions for long-term planning purposes. However, contract terms for most DR programs are typically less than 5 years, which increases the uncertainty surrounding DR beyond that timeframe. This may exacerbate long-term planning efforts particularly as the reserve margin tightens.
Response: The FMDRAT believes it is correct to say the underlying measures delivering the demand reductions may be under shorter term contracts than the planning horizon. However, in most markets, aggregation of measures into resources is the norm and provides the constancy of the resource vis-à-vis additions and removal of underlying measures. In markets that count DR for resource adequacy, the market designs provide for periodic removal of resources through market mechanisms that include reliability analysis.		
Electric Power Supply Association		Please refer to answer to Question #8
LG&E and KU Services	Yes	
NRG Energy, Inc. ("NRG")	Yes	While DR's contributions may be accounted for in the planning horizon, as discussed in response to Question 2, there is a gap between those plans and the inclusion of DR in the operational horizon. Entities are required to include DR in their planning and forecasting under the MOD standard, but there is currently no mechanism to hold DR accountable for performing (other than penalties that may occur under commercial

Organization	Yes or No	Question 3 Comment
		and contractual arrangements, which as discussed in response to Questions 1 and 8 are the same penalties faced by generators for non-performance). Resource adequacy procurement, both of generation and demand response, already accounts for a statistical estimate of non-performance. However, NERC and FERC have already concluded that reliability needs dictate that conventional suppliers of resource adequacy services should: (i) have their performance discounted by a statistical estimate of non-performance and (ii) be subject to regulation as registered entities. It is unclear why DR providers should only be subject to (i) and not (ii).
Response: The FMDRAT determined that based on experiences in current markets, DR is subject to the same provisions as generators with respect to participation in resource adequacy markets. At such time that DR becomes a more significant component of the resource pool and having a unique impact, the issue of inclusion in the Functional Model should be revisited.		
Clallam County PUD No.1	Yes	
Xcel Energy	No	We cannot speak as to how other entities deal with uncertainties around DR in their resource adequacy assessments.
Response: Thank you for this response.		
Flathead Electric Cooperative, Inc.	Yes	
FirstEnergy Corp	Yes	FirstEnergy feels that each entity will apply a discount or percentage factor they are most comfortable with providing. There are no standard requirements between entities as to what factor is used. Since DR is a short-term commitment backed typically by annual contracts there should be standardization around the assumptions made for DR use in the long-term planning horizons.
Response: The requirements for planning may be different for each area making establishment of a standard discount factor difficult.		
Independent Electricity System Operator	Yes	Also, see our comments in response to Q2.
New York Independent System	Yes	The NYISO uses the derated capability of demand response enrolled in its reliability

Organization	Yes or No	Question 3 Comment
Operator		programs, which is based on historical performance over a capability year, in its studies on resource adequacy and in its long term planning. The NYISO's demand response programs have been in place for over ten years and enrollment continues to grow as demand side resources gain more experience in their ability to respond to a curtailment request, technology improves the automation of response, and demand response aggregators improve their business models to recruit and retain demand response resources.
Response: Thank you for this information. As indicated in the Summary Consideration to Question 1, our focus is on the DR's performance from a resource provision viewpoint rather than addressing DR as a service aggregator with respect to its commercial arrangement or contractual performance. As to the technological advances that may assist aggregators to respond to requests, the FMDRAT will continue to monitor such progress, and reinitiate a review of the impacts of automation as appropriate.		
Lee County Electric Cooperative	Yes	
Westar Energy	Yes	
Texas Reliability Entity	No	Again, no, at least not for all DR applications. In our Region, the amount of certain DR-supplied operating reserves is at a constant level in long term assessments, based on the amount that our market rules allow for procurement of this service. To the extent that this figure is discounted, that discount appears to be based not on probability of future availability, but instead on performance levels in Regional criteria and historical participation. Other DR services may be subject to different analysis. I do agree that DR contributions are included in long-term plans.
Response: The FMDRAT disagrees with this assertion as it applies to ERCOT. The question is whether DR is properly accounted for in planning, including whether discount factors or probability analyses are applied to the accounting of DR in long-term planning documents. ERCOT has an established process to account for DR inclusion in planning documents. If operating reserve projections are static from year to year in the long-term assessments, that is only because the established process calls for the values to be static. **To the extent that DR in resource adequacy should be discounted, the FMDRAT believes the comment is in agreement that there are already discount factors or as in the case of ERCOT, fixed quantities, utilized in the markets.**		

Organization	Yes or No	Question 3 Comment
American Electric Power	No	While this might be true for existing requirements, future requirements will likely drive the need to create a segmentation of responsibilities. Even if the DR functional entity is not absolutely necessary at this time, future requirements will likely make the need even more apparent. We believe the creation of a DR functional entity will ultimately be necessary, so it seems preferable to create them now rather than simply delaying the inevitable.
Response: The FMDRAT has not ruled out the inclusion of DR as a functional entity, but believes that it is premature and could be reconsidered in the future.		
Georgia System Operations	Yes	
Duke Energy	Yes	
Hydro-Quebec TransEnergie	Yes	
Entergy Services	Yes	
American Transmission company, LLC	Yes	
Georgia Transmission Corporation	Yes	
Ingleside Cogeneration LP	Yes	All long term planning entities assume that some fraction of committed resources will not be available during a contingency, whether these are generation or Demand Response resources. This is a practical reflection of the reality that there are many factors that would lead to a Demand Response resource to be unavailable - and consistent with any other resource connected to the BES. Also, as mentioned in the FMDRAT report, many planning entities provide for meeting forecasted load, including that represented by Demand Response. The DR portion is then used in planning for adequate reserves during contingencies.
Response: Thank you for this information.		
Salt River Project	Yes	
National Rural Electric	Yes	The degree of consideration for DR contributions varies greatly among transmission

Organization	Yes or No	Question 3 Comment
Cooperative Association (NRECA)		planners and the regions they serve. Those who are planning in RTO regions with capacity and reserve markets likely take a much stronger look at the long-term contributions of DR than in other regions without such markets. DR can be used to help offset capacity requirements for LSEs and help to meet reserve targets in the markets. Most likely DR contributions in transmission planning are viewed much more conservatively due to the nature of the transmission system operation and the long lead-times associated with the planning and construction of transmission facilities. Peak load projections are the primary driver for transmission planning, and the contributions of DR to that peak load requirement will likely e discounted based on local experiences over time. Whether and to what degree probability analysis is applied to this effort, has little bearing on the question at hand, other than the further out the planning cycle extends, the likelihood DR will see greater discounts (regardless of the discount method of choice).
Response: Thank you for this information.		
Public Service Enterprise Group	No	While resource adequacy assessments are not embedded in NERC's standards, they are performed by NERC to fulfill its obligations per Section 215 (g) of the Federal Power Act. Our responses to Question 1 and Question 2 demonstrate that DR has a reliability role in the operation of the BES, and should be considered in planning for BES reliability. The determination of whether a reliability function for DR should be included in the FM is not solely dependent upon how DR is modeled for resource adequacy assessment treatment. The purpose of the FM is to ensure there are no gaps in the operation, or performance of reliability tasks anywhere in the BES. The determination as to whether a function should be included in the FM should be based on the reliability effects arising from that particular function as well as the interrelationships between the specific function and the other reliability tasks in the FM. As noted in our comments on Conclusion (2), PSEG does not believe the FMDRAT effectively evaluated these interrelationships. Additionally, NERC recently created the NERC Demand Response Availability Data System (DADS) to collect information on the performance of DR. Explaining the need for DADS, NERC also clearly laid out the

Organization	Yes or No	Question 3 Comment
		importance of DR to reliability with the following statement. "In order for NERC to carry out its responsibility to ensure the reliability of the North America bulk power system, NERC must be able to: evaluate and understand the benefits of demand response and it impact on reliability; quantify the performance of demand-side resources; and assess the overall characteristics of demand response as it relates to bulk power system planning and operations."These statements suggest that NERC is looking at DR as an important component of the BES which should not be overlooked by summarily dismissing DR from inclusion in the FM. They also reinforce the fact that FMDART's conclusion is at odds with overall NERC policy and direction on this issue.
Response: The response to PSEG's comment to question 2 is equally responsive to this comment. Given the current levels of DR in use today, inclusion in the Functional Model is not necessary and may not provide any greater value. The FMDRAT agrees that the development of DADS points to the increasing importance of performance data on DR. Continued use of DADS will be critical to the design of DR programs specific to an area or market, and in a future assessment of the need to define a DR function and functional entity in the Functional Model.		
ISO-NE	Yes	
Kansas City Power & Light	Yes	Although the FMDRAT report did not specifically refer to the NERC Reliability Standards, the MOD-018-0 Standard requires Entities to include consideration of uncertainties of load projections and energy to meet load obligations and the treatment of those uncertainties for the purpose of assuring those uncertainties are reflected properly in reliability assessments. The conclusion that was drawn by the FMDRAT is consistent with the application of this standard.
Response: Thank you for this information and the support.		
ERCOT ISO	Yes	
Constellation Energy Commodities Group	Yes	
Southwest Power Pool - RTO	No	Again, the FMDRAT report does not provide sufficient evidence to support this conclusion. Supporting data, in the form of survey results or other research, would

Organization	Yes or No	Question 3 Comment
		have assisted in validating this conclusion. While I do believe the statement is true, the report offers nothing to support it.
Response: The FMDRAT based its conclusions on the collective experiences of the members on the FMDRAT. If additional information exists on planning procedures that are broadly applied across all planning entities, the FMDRAT can use this information to consider future requirements.		

4. Do you agree with Conclusion (4) that in operational planning, there are no known entities that count on DR as a critical component of their operational plans, and that an additional DR functional entity will not change the current role or responsibility of the planning coordinator, resource planner, or operations planner? If not, please explain in the comment area.

Summary Consideration:

The majority of commenters either agreed with the assertion, or disagreed but qualified that DR would become more critical over time. The FMDRAT believes this to be an entirely possible outcome but points out that this report concerns the current, and static, point in time. The FMDRAT emphatically agrees that this is an area that must be revisited periodically. This does not mean that DR has less value than other resources. Rather, the FMDRAT concludes that DR is an emerging resource, and that market mechanisms exist which provide grip operators with the economic flexibility to draw on other resources in the event DR falls short in a particular response.

Further evidence supporting this conclusion is the use of performance models by virtually every ISO and local Load Serving Entities which compensate for potential uncertainty by devaluing enrolled DR capability for planning purposes. The FMDRAT believes that these models will become more rigorous over time and with improved data. Unlike renewable energy, there is no mandate for specified DR contribution levels. For example, 30 states have renewable portfolio standards requiring specific amounts of generation by a date certain. No state or federal entity has set similar standards for DR. As a result, DR exists as a viable resource only as long as it proves its worth and does so on a year by year basis. Unlike generation, DR can be removed from a market relatively quickly and with no environmental impact.

The fundamental question is whether any known entities count on DR as a critical component of operational plans. The FMDRAT could not find any evidence of this. The evidence suggests that DR is a valuable and important component of markets, but not that those markets could not be served if DR were not available or if it performed inadequately.

Organization	Yes or No	Question 4 Comment
PJM	Yes	
Pepco Holdings Inc & Affiliates	No	Demand Response is a key component for meeting the resource adequacy requirements in the PJM market. PJM recognizes the key role of Demand Response, and includes DR resources among those which may be offered to meet the resource requirements of Load Serving Entities operating in the PJM system.

Organization	Yes or No	Question 4 Comment
Response: **DR is important in the PJM market, but markets and tariffs are not subject to NERC standards. The FMDRAT is not implying that DR does not play a key role in markets. The question is whether or not DR is a reliability issue that must be standardized as an independent category. The fact that DR is being offered and accepted by PJM is an indication of a viable and innovative market. The FMDRAT did not see a need to intervene at this time.** **DR is a key component, but the assertion that DR resources "may" be offered implies they are not critical in operational planning, but are an alternative resource. As a practical matter, the majority of entities that sponsor wide ranging programs have mechanisms to discount or to de-rate the value of DR from the nominal value offered. For example, ERCOT uses a blanket 50% discount, while NYISO and ISO-NE have a derating methodology in their market rules.**		
Bonneville Power Administration	Yes	BPA strongly requests clarification from the FMWG. BPA believes that the language for Conclusion 4 appears out of the ordinary and is counter to the document the task force published concerning Demand Response Data Availability System (DADS.
Response: DADS is an effort to identify and track demand resources on a national, but centrally coordinated scale where none has existed in the past. While DR programs have existed for some time, the growth of the past years and the variety of approaches suggest that the DADS process itself will change and mature as NERC gains more experience with it.		
Florida Municipal Power Agency	Yes	
ACES Power Marketing Standards Collaborators	Yes	We know of no entities that count on demand response in operational planning. Furthermore, even if BAs and TOPs did count on demand response, they are required to have other plans in place per EOP-002 and EOP-003.
Response: Thank you for the support.		
NERC Staff	No	
PJM Power Providers Group		Please see comments in Question 8
Electricity Consumers Resource Council (ELCON)	Yes	The FMDRAT should clarify that Conclusion (4) does not imply that (a) DR resources have no or less inherent value, (b) entities do not utilize DR in-part for resource adequacy/planning, or (c) that entities capable of deploying DR in their operational plans should not recognize that value.

Organization	Yes or No	Question 4 Comment
Response: The Energy Security Act of 2005 states that DR is the national policy of the federal government. The FMDRAT draws no conclusion about its value, either intrinsic or relative. It is clear that several major entities use DR as a key component of their resource planning. The question is whether DR is a "critical component" by which we mean that it is unique and irreplaceable in its meaning to the BES, and that its absence would de facto cause failures; but not that it has no value.		
Southwest Power Pool Regional Entity	No	Adding a DR functional entity will not change the role of the planning coordinator, resource planner or operations planner for maintaining the reliability of the BES. Adding a DR functional entity would make demand response providers responsible for meeting enforceable reliability standards applicable to their function. SPP RE disagrees with the statement that there are no known entities that count on DR as a critical component of their operational plans since Reliability Coordinators, such as PJM and ERCOT, have controllable Demand Response Programs that they rely on to increase operating reserves when they fall below the required amount or to supply ancillary services. PJM has an Emergency Demand Response program that represents a mandatory commitment to reduce load during system emergencies. ERCOT has two programs that allow load to participate in the ancillary services market and respond to grid emergencies.
Response: **The FMDRAT believes that all assets and third party providers must be held responsible for their contractual commitments. The issue is who is responsible. The standards hold BAs, TOPs and RCs as operationally responsible. For DR assets, market rules serve to identify and maintain performance. The aforementioned PJM market does make use of DR and has imposed market rules to ensure the needed response. PJM's innovations have been effective and did not and do not require mandatory standards for its effectiveness. The FMDRAT did not identify a widespread issue related to individual DR assets. The issue of DR was reviewed but NERC standards address entities not third party processes.** **To the extent that these accumulations are not an issue, the FMDRAT believes that there is no need at this time to create a new entity to handle unsubstantiated concerns.** **Further, the FMDRAT agrees that Balancing Authorities can and do permit DR resources to participate as operating reserves. If an organized market, procuring operating reserves in its day-ahead market, did not receive any offers from DR resources, it would continue to meet its reliability obligations by procuring the reserves entirely from generators. The ISO cannot require a DR**		

Organization	Yes or No	Question 4 Comment
resource to submit an offer, and it cannot instruct a non-committed DR resource to reduce its Load. Accordingly, the FMDRAT stands by its assertion that there are no known entities that count on DR as a critical component of their operational plans, and that an additional DR functional entity will not change the current role or responsibility of the planning coordinator, resource planner, or operations planner.		
Electric Power Supply Association		Please refer to answer to Question #8
LG&E and KU Services		See response to Question 2
NRG Energy, Inc. ("NRG")	No	No. Existing operational plans are already counting on DR resources as a critical component of their operational plans. In fact, the NERC definition of "non-spinning reserve" is already defined to include DR products. That definition states that "non-spinning reserve" includes "interruptible load that can be removed from the system in a specific time" and that "interruptible load" is defined as "demand that the end-use customer makes available to its Load-Serving Entity via contract or agreement for curtailment." Thus, NERC already requires reliability coordinators and LSEs to use DR as one of their tools when encountering a disturbance on the BES. Additionally, several existing NERC standards mandate that RCs and LSEs utilize DR to maintain BES reliability, including MOD-016 through MOD-021 as discussed in response to Question 2 and EOP-001-0, which lists the following as emergency responses: o System energy use - the reduction of the system's own energy use to a minimum. o Load management - implementation of load management and voltage reductions, if appropriate; o Interruptible and curtailable loads - use of interruptible and curtailable customer load to reduce capacity requirements or to conserve the fuel in short supply; o Load curtailment - a mandatory load curtailment plan to use as a last resort. Additional standards also require the reliance on DR when faced with various operating scenarios, for example: o IRO-006 requires RCs to initiate voluntary load reduction, including DSM, among other mechanisms, when exceeding Interconnection Reliability Operating Limit. EOP-002-3 - R.6, lists various remedies for the BA to implement should it not comply with the Control Performance and Disturbance Control Standards, including curtailing interruptible load. Further, the different regions include explicit operational language including the activation of DR as a

Organization	Yes or No	Question 4 Comment
		method to return operating systems to normal state. For example, o NYISO lists the activation of Special Case Resources and Emergency Demand Response Programs as possible remedial actions to be implemented in response to an alert state, major emergency or operating reserve deficiency or shortage (*1 NYISO, Manual 15, Emergency Operations Manual at Â§Â§ 1.2.2, 2.3, 3.3.1 and 4.4 (November 2011) available at http://www.nyiso.com/public/webdocs/documents/manuals/operations/em_op_mnl.pdf.); o PJM explicitly includes demand resources as load management products and the emergency operations manual states that in response to a load reduction action issued in an emergency situation, demand resources are to reduce load; PJM Manual 18: (*2 PJM Capacity Market (Feb. 23, 2012); PJM Manual 13: Emergency Operations at Attachment G (Capacity Emergency Matrix) (Jan. 1, 2012)) and o ERCOT relies on DR to maintain system frequency and meet total system capacity, primarily through Load Resources providing responsive reserves and emergency reserve service. Both of these programs have measurement and verification to determine the availability and responsiveness of the reserves. Load Resources providing frequency response with an under frequency relay are an essential tool for grid security in ERCOT. These loads trip instantaneously when frequency dips below their set point. Thus, it is simply inaccurate to suggest the DR resources are not needed for reliability. The RCs, LSEs and ISOs are counting on DR to perform when called upon and as such, DR must be subject to the same reliability standards as generation, otherwise reliability is compromised. As discussed in response to Question 2, there is an inherent gap between the inclusion of DR in the planning horizon but not holding DR accountable through operating standards. The Report's finding that a DR asset poses no impact to reliability because its impacts are analyzed and assessed in the operating plans of the respective TOPs and BAs, ((4) Report at 3.1.) ignores the fact that the TOPs and BAs are relying on DR, just as they rely on generation and DR must be held accountable. Again, subjecting DR to the tasks similar to those set forth in Appendix A to the Report will achieve this goal.
Response:		

Organization	Yes or No	Question 4 Comment
The FMDRAT does not disagree with the commenters that a number of existing standards include DR in various applications, as a MW relief to either provide the needed reserve, be considered in capacity assessment, or to address operating emergencies along with other available measures including shedding of firm load. Further, the FMDRAT does not disagree, nor does the report suggest the contrary, that DR can contribute to reliability and that its misoperation can have a reliability impact. The FMDRAT's findings indicate that: **a. DR is considered in long-term planning, operations planning and during real-time operations as a contributor to capacity and reserve; however, all planning and operating entities take into account the possibility of DR not performing as expected;** **b. There are recourses to address any Adverse Reliability Impact due to DR's misoperation** **c. The MW impact of DR's non-performance is no different than a generator not producing at the expected level, for which there are commercial obligations but not reliability standards. The FMDRAT thus does not see a need to impose reliability standards to enforce the commercial arrangements.** **Both DR and generators may offer to provide reserve. As an example to illustrate how markets consider DR participation, ERCOT relies on appropriate Ancillary Services to maintain system frequency and meet total system capacity, and allows either generation or load resources to participate pursuant to regional rules. Also, please see the response to SPP above.**		
Clallam County PUD No.1	Yes	
Xcel Energy	No	We have no way to determine if this statement is true or not.
Response: Thank you. Without further elaboration, the FMDRAT is unable to respond to this comment.		
Flathead Electric Cooperative, Inc.	Yes	
FirstEnergy Corp	No	FirstEnergy is not privy to the operational planning activities of other entities. For the FirstEnergy transmission system, DR is a tool available and used in real-time operations by our regional transmission organization. As more importance is placed upon the reliable operation of DR resources, this can become a critical component in the real-time operations, and PJM long-term planning places significant reliance on DR performance as a capacity resource.
Response:		

Organization	Yes or No	Question 4 Comment
The FMDRAT does not suggest that DR does not have any reliability impact, it only establishes that any Adverse Reliability Impact due to DR misoperation or non-performance is considered and addressed in long-term planning assessment and operations planning. At present, DR has not exhibited a unique characteristic that would require the addition of a DR function and a DR functional entity, or any reliability standards to address any unique reliability impacts. DR obligations are enforced by commercial arrangements. Imposing reliability standards to enforce the commercial arrangements is unnecessary. Regarding PJM's innovative Market approach, the FMDRAT is concerned that such innovations would be stifled by adopting standards at this time. PJM is satisfied with the success of its innovations and has not seen a need for mandatory standards to support its market initiatives. **DR appears to be at the start of significant change in two ways. There is growing interest in its use to balance certain renewable resources, and there is a movement to merge energy efficiency and DR into common planning strategies. There are new innovations in Auto DR, resource modeling on the demand side, and algorithmic control of energy management systems at end user sites. On distribution systems, there are early pilots with volt/VAR control as well as dynamic line rating relays. Against this backdrop, the current market rule approach to managing DR appears to satisfy current needs. Imposing standards now would cut off investment in these areas, but ongoing discussion, especially with improving data, is desirable.**		
New York Independent System Operator	No	The NYISO, under a variety of scenarios, takes into account the activation of Demand-side Resources as a measure to reduce the load curve to meet an identified reliability need.
Response: This is true for many entities, but "taking into account" is different from "critical" to the outcome. Even in reliability situations, a DR resource may be used because it is more economic than an alternate resource. "Critical" would mean that without this resource, the BES would be compromised. Clearly, there are certain conditions in specific locations where DR has proven indispensable; *e.g.*, zone J in Manhattan on very hot days, the "day the wind died" in Texas and so forth. Until this becomes a routine situation with national scope, the more supportive approach is to let the BA's handle as appropriate to local areas. As NERC determines these situations to become more widespread, it should revisit the question.		
Lee County Electric Cooperative	Yes	
Westar Energy	Yes	
Manitoba Hydro	Yes	
Texas Reliability Entity	No	No, for reasons explained above, for those aspects of DR that participates in operating reserves for disturbance recovery at a meaningful level. There are less mature DR applications for which this is a valid conclusion.

Organization	Yes or No	Question 4 Comment
Response: There is less consistency in the way DR resources are managed across the continent than with other assets. There is a far greater variety of ownership and asset type as well. While there is no doubt that DR is a significant component in many resource plans, the current means of administering those resources appears to meet the needs of the respective entities. We should understand whether "meaningful" is synonymous with "critical" in this respect. Without a definition of critical and significant declarations that DR is indeed critical across a broad spectrum of geography and regulatory authority, establishing a functional entity at this point may be premature. **Also, please see the response to SPP above.**		
American Electric Power	No	Again, as stated in our response to Q1, this conclusion if taken literally negates the need for, and benefits of, Demand Response. If DR requirements are indeed needed, there should be a functional entity created to properly represent the work being performed.
Response: The FMDRAT does not agree that the lack of a functional entity is the same as negating the need for DR or its benefits. The FMDRAT believes that the need for resource management is met adequately by existing rules and oversight.		
Georgia System Operations	Yes	
Duke Energy	Yes	While Demand Response is an important tool that can be used in the operational time frame, inclusion of an additional DR functional entity will not impact the current roles and responsibilities of the listed entities.
Response: The FMDRAT agrees with this comment. Thank you for the support.		
Hydro-Quebec TransEnergie	Yes	
Entergy Services	Yes	
American Transmission company, LLC	Yes	
Georgia Transmission Corporation	Yes	
Ingleside Cogeneration LP	Yes	As mentioned above, many planning entities provide for meeting forecasted load, including load represented by Demand Response. Planning for reserves, including generation and DR, is then addressed, as mentioned in the report, by applying a

Organization	Yes or No	Question 4 Comment
		discount factor or probability analysis to resources' availability in the resource adequacy assessments. Planning entities apparently have adequate information concerning DR resources currently. Hence, adding a DR function would not change the role or responsibilities of the planning entities.
Response: Thank you for the support. This is an effective restatement of the FMDRAT position.		
Salt River Project	Yes	
National Rural Electric Cooperative Association (NRECA)	Yes	NRECA is not aware of any entities that count on DR as a critical component of said entities operational plans.
Response:		
Nebraska Public Power District		
Public Service Enterprise Group	No	Please see the responses to Questions 1 and 2.
ISO-NE	No	The conclusion contains two separate assertions: (i) whether DR is a critical component of operational plans, and (ii) an additional DR functional entity will not change the current role or responsibility of the PC, RP, or operational planner. Depending on the area, DR may be important part of operational planning. For instance, FERC has recently observed that the reliability of ISO-NE's power grid hinges on the fact that its market participants, whether providing generation or demand response, respond timely and accurately to ISO-NE dispatch instructions. The question of whether the roles/responsibilities of PCs, RPs might be modified depends on the role/responsibility assigned to DR. (Operational Planner is not a Functional Model entity)
Response: There is a need to define "critical" in this context. This statement draws attention to the role of DR plans, but the use of descriptors like "may", "depends", and "observed" stops short of a demonstrated need to undertake a major potential disruption of this market. ISO-NE has a robust, secure and dedicated communications network and requirements around DR, and the FMDRAT would argue that this need is handled appropriately by the ISO, negating the need for a functional entity. At this time, such an entity might have an effect opposite the desired one; *i.e.,* resulting in enough additional cost and complexity that there would be an exodus of these important resources from programs.		

Organization	Yes or No	Question 4 Comment
Kansas City Power & Light	Yes	NERC Reliability Standards MOD-019-0.1 and MOD-020-0 require Entities to provide forecasted and actual demand response actions for the express purpose of performing and understanding the reliability impact of the effects of demand response actions.
Response: Thank you for the support. This comment is consistent with the FMDRAT's position.		
ERCOT ISO	Yes	
Constellation Energy Commodities Group	Yes	
Southwest Power Pool - RTO	No	While we are not aware of any entities that count on DR as a critical component of their operational plans, the FMDRAT report does not provide any supporting evidence/data to collaborate the conclusion.
Response: This is an administrative objection and can be addressed only through a funded and comprehensive survey as noted above. As none of the respondents have identified DR as a critical component in unambiguous terms, this further strengthens the FMDRAT's conclusion.		

5. Do you agree with Conclusion (5) that reliability standards are not required to enforce DR compliance with contractual agreements or obligations, and that imposing reliability standards to force compliance with commercial agreements would be inappropriate, may not achieve the desired outcome, and in fact may discourage entities from participating in DR programs? If not, please explain in the comment area.

Summary Consideration:

The majority of the commenters agree with this conclusion. From the minority set of commenters that disagree with this conclusion, the FMDRAT assesses that the disagreement appears to be due to lack of clarity in the report regarding the following issues:

a. Treatment of DR and Generation in regards to reliance on business or commercial arrangements;

b. the entities responsible for ensuring continued BES reliability in the face of increasing reliance on DR; and

c. the physical differences between DR and Generation.

The FMDRAT is not proposing to treat DR differently from Generation in regards to reliance on business or commercial arrangements. The basis for comparison between generators and DR is the MW adjustment in response to market mechanism or instructions or requests. There currently do not exist any reliability standards that mandate generators to produce at the bid or requested or committed levels. Similar to generators' obligations, having reliability standards to further enforce business or commercial arrangements would be unnecessary and might well become a disincentive for loads participating in DR programs.

The FMDRAT does not suggest that DR resources play no role in preserving the reliability of the BES; it only suggests that the Adverse Reliability Impact created by DR's mis-performance is duly addressed by the entities that account for DR in their resource adequacy/reserve assessments. The FMDRAT believes that existing functional entities (most likely the BA or RP) should be accountable for ensuring the DR provision level is assessed or even limited to ensure reliability. It does not demonstrate the need for having a DR function or DR functional entity.

Finally, there are physical differences between a generator as a machine and DR as a service provider or DR as a load. The basis for registering Generator Owners and Generator Operators is predicated from the need to perform specific reliability tasks on the generators to support and ensure reliability, as presented in the Functional Model. The basis for having standards for Generator Owners and Generator Operators is the recognition of the physical impacts that generators may have on the BES when they respond to system events, and react to control signals. This type of reaction and response to system conditions does not exist in DR service arrangements. DR is essentially a load that offers a curtailment option; there is no unique or special performance or seasonal capability on the physical aspects of the DR as a load that is not already available through obligations imposed on the LSEs.

Organization	Yes or No	Question 5 Comment
PJM	Yes	
Pepco Holdings Inc & Affiliates	Yes	
Bonneville Power Administration	Yes	BPA recognizes the need to continue to attain "utility conventional reliability standards" as they are not detached. BPA believes the FMWG has not made the case that it is not a reliability issue. BPA also believes the topic is more closely in-line with load response, not demand response.
Response: The basis that supports Conclusion (1) addresses any potential reliability issues caused by DR mis-performance, which together with the business arrangements involving DRs suffice to arrive at this particular conclusion that reliability standards are not required to enforce DR compliance with contractual agreements or obligations. The topic of load response is not within the scope of the FMDRAT charge.		
Florida Municipal Power Agency	Yes	
ACES Power Marketing Standards Collaborators	Yes	Reliability standards cannot impede markets and tariffs. Applying reliability standards to demand response at this stage of development will likely impede its development. Risks of sanctions will add one additional significant business risk that certainly does discourage development of demand response.
Response: Thank you for the support.		
NERC Staff	No	
PJM Power Providers Group		Please see comments in Question 8
Electricity Consumers Resource Council (ELCON)	Yes	
Southwest Power Pool Regional Entity	No	SPP RE believes that this is true so long as reserve margins are high and the demand response penetration in an area is low. NERC is not responsible for enforcing compliance with contractual agreements, however, they are responsible for maintaining the reliability of the BES through enforceable standards. Should controllable DR penetration reach a level that becomes critical for maintaining reliability, then DR providers should be held accountable for providing their service just as the entities that currently comprise NERC's functional model are. Applicable DR reliability standards would not be used to force compliance with

Organization	Yes or No	Question 5 Comment
		commercial agreements, but would ensure that the DR providers meet their reliability performance obligations.
Response: The FMDRAT agrees that, should controllable DR penetration reach a level that becomes critical for reliability, some entities (likely the RP and the BA) should be held accountable for ensuring the DR provision level be assessed or even limited to ensure reliability. This is a DR program design issue, not a basis for having a DR function or DR functional entity. **The FMDRAT regards DR providers as the entities that aggregate DR offers as a pure business service arrangement (*see* Summary Consideration in Question 1). These entities are not perceived to have any large-scale direct control over the facilities that trip DRs and therefore do not have any actions or inactions that will affect reliability. We further hold the view that similar to generators' obligations, having reliability standards to further enforce business or commercial arrangements would be unnecessary and might well become a disincentive for loads participating in DR programs.**		
Electric Power Supply Association		Please refer to answer to Question #8
LG&E and KU Services	Yes	In many cases, the "contractual agreements or obligations" on DR resources include regulatory (FERC or PSC) approved tariffs, terms and conditions. The potential of additional costs for DR providers related to compliance activities (or potential penalty for non-compliance) could discourage many DR programs, leading to reduced participation. See response to question 2.
Response: Thank you for the support.		
NRG Energy, Inc. ("NRG")	No	The Report curiously concludes that because DR is usually arranged through commercial arrangements or contractual agreements and penalties are levied if these obligations are not met, reliability standards are not needed to address the reliability impacts to the BES if DR does not comply with its commercial obligations. (Report at 3.4.) There are several problems with this analysis. First, the premise of the question appears to be that DR resources play no role in preserving the reliability of the BES. As discussed above, this is an incorrect assertion, particularly as DR continues to grow as a portion of total load. Second, financially driven decisions may not be consistent with the reliability of the BES. For example, an entity driven only by financial considerations may (reasonably) elect to pay a financial penalty rather than curtail load and absorb lost opportunity costs when it

Organization	Yes or No	Question 5 Comment
		receives a dispatch from system operators. The economically driven decision may result in stress on the BES as the system operator does not experience the expected drop in load. Third, NERC has previously concluded that economic penalties alone are insufficient to incent generator performance. In most parts of the country, a non-performing DR provider and a non-performing generator would be subject to comparable financial penalties should it not fulfill its commercial and/or contractual arrangements. The FMDRAT's implicit conclusion that NERC registration is necessary to incent generator performance, but is not necessary to incent the performance of DR, is thus illogical and should be reversed. Fourth, NERC registration provides a valuable tool for ensuring that Registered Entities are ready at all times to follow instructions received from grid operators. Requiring DR providers to register would similarly improve the quality of their compliance with reliability instructions from system operators.

Response: On the first point, Conclusion (1) does not suggest that DR resources play no role in preserving the reliability of the BES; it only suggests that the Adverse Reliability Impact created by DR's mis-performance is duly addressed by the entities that account for DR in their resource adequacy/reserve assessments.

On the second point, the FMDRAT agrees that financially driven decisions may not be consistent with the reliability of the BES, and an entity driven only by financial considerations may (reasonably) elect to pay a financial penalty rather than curtail load and absorb lost opportunity costs when it receives a dispatch from system operators. This is no different than Generator Operators electing to not increase generating level or to generate to provide the committed reserve when called upon. At present, there are no reliability standards that enforce Generator Operators to fulfill such obligations, despite the fact that their economically driven decision may result in stressing the BES.

The FMDRAT concludes that the need to develop reliability standards to enforce commercial obligations must be assessed with a holistic view, not just on the need to enforce DR obligations on its own. On this basis, and absent like requirements for Generator Operators, the FMDRAT arrives at this in Conclusion (5).

On the third point, in most parts of the continent (not just the country), a non-performing DR provider and a non-performing generator can be subject to comparable financial penalties should it not fulfill its commercial and/or contractual arrangements. The FMDRAT makes no implicit conclusion or suggestion that NERC registration is necessary to incent generator performance, but does suggest that it is not necessary to register DR to incent its performance. There are physical differences between a generator

Organization	Yes or No	Question 5 Comment
as a machine and DR as a service provider or DR as a load. The basis for registering Generator Owners and Generator Operators is predicated from the need to perform specific reliability tasks on the generators to support and ensure reliability, as presented in the Functional Model. **Fourth, NERC registration provides a valuable tool for ensuring that Registered Entities are ready at all times to follow instructions received from grid operators. DR providers are essentially LSEs unless we are referring to the aggregators that are purely service providers that do not own or operate any facilities that trip loads participating in a DR program. The FMDRAT does not see how registration of any DR entities, if created, would improve the quality of their compliance with reliability instructions from system operators.**		
Clallam County PUD No.1	Yes	
Xcel Energy	Yes	
Flathead Electric Cooperative, Inc.	Yes	Strongly agree with this statement DR resources are typically small and well under BES thresholds, often connected a low voltages to local distribution networks outside of FERC jurisdiction.
Response: Thank you for the support.		
FirstEnergy Corp	No	FirstEnergy is concerned with the amount of reliance placed upon DR resources in both the planning and operating of a reliable bulk electric system. DR resources should demonstrate the same level of assuredness as conventional generating resources in system planning to achieve an adequate level of reliability. A variety of factors (tariff provisions or regulatory) may be structured to favor DR over traditional generation resources. In doing so, these actions may put the reliability of the transmission and distribution system in jeopardy should customers not wish to participate in DR programs long term due to the volume and duration of load curtailment requests. The commitment from DR resources and its importance to reliable operation of the system would be better reinforced through expectations described in mandatory and enforceable NERC reliability standards.
Response: Conclusion (1) of the report does not suggest that DR resources play no role in preserving the reliability of the BES; it only suggests that the adverse reliability impact created by DR's mis-performance is duly addressed by the entities that account for DR in their resource adequacy/reserve assessments. There is no indication or limit suggested in the report as to the extent to		

Organization	Yes or No	Question 5 Comment
which responsible entities should or can rely on DR in capacity assessments and reserve assessments. The report only addresses the need to define a DR function and a DR functional entity at this time to take care of potential, unique reliability impacts due to DR operations and mis-performance. The extent to which DR is factored in resource assessment is left to the discretion of the responsible entities. If the industry begins to see a need to limit the amount of reliance on DR, then such a limit will find its way into the appropriate standards, but such a limit will be imposed on the responsible entities such as RPs and BAs, not the DR "entity" per se, that account for DR in their assessments, and in the establishment of DR programs.		
Independent Electricity System Operator	Yes	We agree that reliability standards are not required to enforce DR compliance with contractual agreements or obligations and that imposing reliability standards to force compliance with commercial agreements would be inappropriate. However the conclusion that DR's minimal reliability impact due to the failure of DR resources to perform as agreed to or as requested may simply be due to its low level of penetration. We suggest amending the second sentence of Conclusion 5 as follows: "At present, there are little or no reliability impacts..." This particular conclusion must be revisited in the future.
Response: Thank you. The FMDRAT will consider your comment if and when we revisit this subject again in the future.		
New York Independent System Operator	Yes	The NYISO believes that higher penetration levels of demand response may warrant the need for a Functional Entity for demand response and that it may be worthwhile for the FMDRAT to reconvene to work towards determining whether NERC or another Functional Entity is responsible for establishing the criteria for different levels of demand response, and whether all demand response providers in the region should be required to comply with reliability standards when the criteria are met or only demand response providers of a certain size.
Response: Whether or not the FMDRAT will reconvene will depend on the industry response to the final report and the FMWG's direction. At this time, on the basis that a DR functional entity is purely a business arrangement service provider and that it does not have access to the facilities that collectively trip loads participating in DR programs, the FMDRAT does not see the need to create a DR function and a DR functional entity even if and when DR penetration should rise to a level which may begin to adversely affect reliability. Further, the responsibility to limit the amount of DR penetration or aggregation appears to rest with other entities, such as the BA or RP, or market designers, not a "DR entity", in the DR program design.		

Organization	Yes or No	Question 5 Comment
Lee County Electric Cooperative	Yes	
Westar Energy	Yes	
Manitoba Hydro	Yes	
Texas Reliability Entity	No	No. In the ERCOT Region, there are Regional criteria under state regulatory oversight that accomplish this purpose, as well as contractual obligations. Contractual agreements and billing for energy undoubtedly have a role in all aspects of DR arrangements, but DR reserve services merit consideration for Standards due to their impact. Our experience suggests that contractual agreements alone have at times not assured that operational preparation or performance needs were met, although the quality of these contracts also varies. The current situation exposes the BA to operational (and compliance) risk for nonperformance of DR resources at times. There may be a risk that establishing NERC Reliability Standards will discourage participation for immature programs. Some threshold study to define levels of DR participation and roles may provide a basis for focusing on the mature programs with clear operational impacts, as suggested by SPP's comments. Any DR Standard development should reflect stakeholder involvement.
Response: The question is whether NERC Reliability Standards are required to ensure compliance by DR resources with their contractual obligations with the responsible entity. The FMDRAT's conclusion was that while reliability requirements, contractual obligations, and penalty structures vary widely from one region to the next, they have proven effective in ensuring performance by DR resources. Any attempt by NERC to develop standards that reconcile the various diverse needs of the different regions into "one-size-fits-all" performance standards would yield a product either so complex as to stifle participation by DR resources, or so watered down as to be ineffectual.		
American Electric Power	No	This has been previously used to infer the apparent similarities between Generation output and markets, however we disagree with this premise as there are many existing GOP requirements which necessitate coordination and communication among these entities. This line of thinking is flawed as it could also be used to advocate that registration not be required for GOPs.
Response: The similarities between Generators and DR are associated with the MW adjustments, not in the impacts on the BES		

Organization	Yes or No	Question 5 Comment
due to their physical characteristics. The requirements to coordinate outage plans, protection relay settings, etc. are based on the physical impacts, not on the MW adjustment impacts. **As indicated in our response to comments under other Questions, the basis for comparison between generators and DR is the MW adjustment in response to market mechanism or instructions or requests. There currently do not exist any reliability standards that mandate generators to produce at the bid or requested or committed levels. In a deregulated environment, generators are free to generate at a level they see appropriate, and there are commercial mechanisms to sanction non-performance. Similar mechanisms exist to govern DR to adhere to bid/contractual agreements. Thus, there is not a need to create any standards to enforce MW production/adjustment on top of the enforcing mechanism provided by commercial or market mechanisms.**		
Georgia System Operations	Yes	
Duke Energy	Yes	
Hydro-Quebec TransEnergie	Yes	
American Transmission company, LLC	Yes	
Georgia Transmission Corporation	Yes	
Ingleside Cogeneration LP	Yes	This is perhaps the FMDRAT's compelling argument against the need to create Demand Resource Owner and Operator Functional Entity types. Many commercial enterprises will find that the cost of compliance to DR-applicable NERC requirements will override the revenue they receive by participating in a load reduction program or a reserve market. As stated in the report, there are no NERC standards for Generator Owner/Operators that force compliance with commercial agreements, i.e., a failure to generate to its cleared energy quantity or to provide the needed reserves as procured or requested by the Balancing Authority. The penalties (or lack of payment) to both generators and Demand Response resources provide compliance with no need for imposing reliability standards.
Response: Thank you for the support.		
Salt River Project	Yes	
National Rural Electric Cooperative	Yes	NRECA agrees that reliability standards are not required to enforce DR compliance

Organization	Yes or No	Question 5 Comment
Association (NRECA)		with contractual agreements or obligations. With an approach that includes the possibility of sanctions for non-compliance, there is a significant business risk that would discourage development of demand response.
Response: Thank you for the support.		
Public Service Enterprise Group	No	Conclusion (5) presupposes that DR is merely a contractual agreement which has no impact on reliability. As discussed earlier, PSEG believes that the performance of DR can be expected to have an impact on the reliability of the BES. Moreover, NERC already includes generator owners and purchasing-selling entities in the FM. These parties enter into commercial arrangements with an understanding that such arrangements may have a host of associated regulatory requirements which may be borne solely by the owner of the asset or shared through the contractual agreement. A generation asset owner is subject to reliability as well as environmental standards, and contractual arrangements may be subject to FERC or state utility commission oversight. In these cases the generation asset owner assesses the costs for compliance with those requirements and factors them into its business plan. Historically, NERC has not considered the effects of these regulatory requirements when specifying reliability requirements for generators. Demand response providers should be treated no differently. To the extent that NERC is relying on indeterminate compliance with these commercial arrangements as the basis for concluding that DR has no impact on reliability, these arrangements should be periodically audited so that there can be some degree of comfort obtained that the arrangements are not wholly illusory. The responsible entities should, at a minimum, have procedures in place to assure that the claimed commercial relationships actually exist for the entire duration of the term for which the DR facility is being claimed as a capacity resource. In addition, adequate standards need to be in place to measure and verify performance and seasonally capability.
Response: The FMDRAT does not agree that reliability standards need to be put in place to sanction or ensure commercial agreements are in place. This has not been done for any commercial contracts between asset owners and operators, or with		

Organization	Yes or No	Question 5 Comment
market operators or host vertically integrated utilities. Compliance with business arrangements are governed by bilateral contracts, and where applicable, by FERC through inclusion of such arrangements in the applicable tariffs. **As indicated in the responses above, there are physical differences between a generator as a machine and DR as a service provider or DR as a load. The basis for having standards for Generator Owners and Generator Operators is the recognition of the physical impacts that generators can have on the BES when they respond to system events, and react to control signals. This type of reaction and response to system conditions does not exist in DR service arrangements. DR is essentially a load that offers a curtailment option; there is no unique or special performance or seasonal capability on the physical aspects of the DR as a load that is not already available through obligations imposed on the LSEs.** **On a MW adjustment viewpoint, there currently do not exist any reliability standards that mandate generators to produce at the bid or requested or committed levels. In a deregulated environment, generators are free to generate at a level they see appropriate, and there are commercial mechanisms to sanction non-performance. Similar mechanisms exist to govern DR to adhere to bid/contractual agreements. Thus, there is not a need to create any standards to enforce MW production/adjustment on top of the enforcing mechanisms provided by commercial or market mechanisms.**		
ISO-NE	No	As DR is treated comparably to other resources, it is not clear why Standards that are crafted to ensure an adequate level of reliability would necessarily discourage entities from participating in DR programs. Moreover, the presence of contractual agreements is not necessarily a dispositive factor about the need for Functional Model categorization.
Response: As indicated in the responses above, there are physical differences between a generator as a machine and DR as a service provider or DR as a load. The basis for having standards for Generator Owners and Generator Operators is the recognition of the physical impacts that generators may have on the BES when they respond to system events, and react to control signals. This type of reaction and response to system conditions does not exist in DR service arrangements. DR is essentially a load that offers a curtailment option; there is no unique or special performance or seasonal capability on the physical aspects of the DR as a load that is not already available through obligations imposed on the LSEs. **On a MW adjustment viewpoint, there currently do not exist any reliability standards that mandate generators to produce at the bid or requested or committed levels. In a deregulated environment, generators are free to generate at a level they see appropriate, and there are commercial mechanisms to sanction non-performance. Similar mechanisms exist to govern DR to adhere to bid/contractual agreements. Thus, there is not a need to create any standards to enforce MW production/adjustment**		

Organization	Yes or No	Question 5 Comment
on top of the enforcing mechanisms provided by commercial or market mechanisms.		
Kansas City Power & Light	Yes	
ERCOT ISO	Yes	
Constellation Energy Commodities Group	Yes	
Southwest Power Pool - RTO	Yes	

6. **Do you agree with Conclusion (6) that DR is a reactive component and a derivative product of the power system; it augments the capabilities of the BES thus increasing the effective utilization of the BES but it does not expand the system's capability to serve more load and does not move spontaneously or in response to system changes for which reliability standards might be needed to ensure acceptable performance? If not, please explain in the comment area.**

Summary Consideration:

The majority of the commenters agree with this conclusion. From the minority set of commenters that disagree with this conclusion, the FMDRAT assesses that the disagreement appears to be due to a disparity among commenters in their awareness of the role of DR in various regions, particularly in the context of registration and qualification requirements, performance metrics, and other associated market rules that pertain to grid reliability. The FMDRAT does not challenge the assumption that the emerging presence of DR as a component in regional operations and planning may eventually create the need for a NERC Functional Entity and, potentially, standards that are specific to DR resources. The FMDRAT contends, however, that this day has not yet arrived and that it would be premature, and potentially harmful to a nascent industry, to attempt to write national standards at this time. In regions where DR is eligible to provide services that require spontaneous response to system changes, market rules in place are more than adequate to ensure performance. Such rules are specific to the unique needs of the region, as they should be, and penalties for non-performance have proven more than sufficient to ensure delivery of the services contracted for.

Organization	Yes or No	Question 6 Comment
PJM	Yes	
Pepco Holdings Inc & Affiliates	Yes	
Bonneville Power Administration	No	BPA's concern is that the FMWG is not using the same definition and/or description of the DR that NERC and FERC are using. BPA also recognizes that a modern DR can move spontaneously.
Response: DR is currently not defined in the NERC Glossary, and the DR report does not attempt to define it. The FMDRAT continues to hold the view that the vast majority of DR is not designed to respond to system conditions spontaneously compared to its generator counterpart whose control devices react to system conditions. In the isolated cases where DR is designed to respond spontaneously to system conditions, its performance is adequately addressed through qualification requirements and performance criteria in those regions.		
Florida Municipal Power Agency	Yes	

Organization	Yes or No	Question 6 Comment
ACES Power Marketing Standards Collaborators	Yes	It is certainly straight forward that removing load from the BES does not increase its capability to serve load.
Response: Thank you for the support.		
NERC Staff	No	
PJM Power Providers Group		Please see comments in Question 8
Electricity Consumers Resource Council (ELCON)	Yes	The FMDRAT should clarify that Conclusion (6) does not imply that (a) DR has no or less value or capability as a capacity resource, operating reserves or regulation service, (b) DR cannot be used to more efficiently serve load than existing resources, and (c) DR cannot be used to reduce system peaks to avoid the need for additional resources.
Response: **The FMDRAT and its report fully support the value and expansion of DR. The FMDRAT is concerned that imposition of mandatory requirements will have a damping influence on DR rather than a supportive influence. The FMDRAT believes that market solutions are still evolving and to date those solutions are serving the industry well. The idea that the creation of a new functional entity somehow legitimizes DR (or conversely that no functional entity de-legitimizes DR) is unfounded. The FMDRAT's focus is whether or not there is a reliability need at this time. To the extent that DR provides new opportunities is one of the key drivers for the FMDRAT's position. Markets will create new opportunities and niches whereas mandatory standards will freeze the resources to remain where the industry is today.** **This conclusion does not suggest (a) and (c), but it does suggest that it cannot be used to more efficiently to serve load than other resources such as generators since DR is not a positive resource, but a resource resulting from some loads not served. The FMDRAT thus agrees that DR has the same value as other capacity resources for planning purposes, that DR can and does serve other loads, can and does serve to reduce peaks, and does provide the same value in providing operating services such as operating reserves and regulation. The FMDRAT does not agree that mandatory standards are needed at this time to affect the preceding actions. At the distribution level, DR allows the service of alternate loads. And to the extent that generation behind the meter is invoked, additional generation resources may be run, thus opening the possibility for additional load to be served.**		
Southwest Power Pool Regional Entity	No	SPP RE agrees that increasing the controllable DR penetration will not increase system capability to serve more load. However, it can be a valuable tool that system operators call on to maintain the reliability of the BES. Not only can DR

Organization	Yes or No	Question 6 Comment
		provide operating reserves and ancillary services, it may provide valuable localized reactive support. Once controllable DR penetration becomes a significant portion of an area's reserves or ancillary services, failing to perform when required may impact reliability. This is why SPP RE recommends that the FMWG conduct a study to determine at what level DR could impact reliability. See response to Question 7.
Response: As indicated in our responses to comments under Questions 1 through 5, the increased penetration needs to be monitored and appropriate measures taken to ensure reliability but such measures and the entities responsible for applying the measures are not necessarily the DR entities themselves, which will respond to instructions or through market mechanisms. The assessment of what this penetration level should be falls outside of the scope of this review exercise, which is to assess the need to define a DR function and a DR functional entity at this time. We encourage the commenter to approach the NERC Planning Committee and Operating Committee to initiate such studies.		
Electric Power Supply Association		Please refer to answer to Question #8
LG&E and KU Services	Yes	DR is a temporary, voluntary or contractual reduction in load occurring within specified parameters. Entitles responsible for BES reliability must be prepared to take necessary action to maintain reliability if DR does not perform as planned or if DR performance is within parameters but the reliability threat persists. As noted in the response to question 2, DR provides area regulation in the PJM region.
Response: **The FMDRAT report does not suggest that there is a need to change the responsibilities for maintaining reliability. Those entities are responsible for performance of their systems regardless of what type of assets they incorporate. There is no added or reduced responsibility placed on entities because of the types of resources in the systems. A system may be all base load resources, all run of river resources or all renewable resources. NERC standards for performance remain the same. The Reliability entities are responsible for providing processes or alternatives to meet the mandatory NERC standards.** **To the extent that DR has different characteristics than other resources, the respective Reliability Entities are free to exploit the new opportunities or to compensate for any adverse characteristics.**		

Organization	Yes or No	Question 6 Comment
As noted in responses to other commenters, PJM's innovations are a result of PJM's market initiatives and were created by and for PJM's members to meet PJM's reliability obligations and to provide the right incentives for resources to participate in the PJM capacity, energy and service markets. The fact that PJM has such a service does not mean that NERC should create a requirement. A standard could result in DR declining to provide the regulation if the requirements and the potential for penalties is too onerous.		
NRG Energy, Inc. ("NRG")	No	This appears to be a fundamental misconception in the Report. As discussed in Question 8, many organized markets consider DR to be both "active" and "passive," depending on what product the DR provider is providing. It is critical that NERC assign appropriate functional responsibilities to DR providers based not on their status as DR providers, but instead based on the service that they are providing to the grid. Further, in each of the organized markets, DR capacity is a 1:1 replacement for thermal generating capacity. Thus, DR is critical to meeting reserve margins. It is impossible to understand how NERC will assure the reliability of the BES if there are no testing, verification of communication protocols, or other registered entity functions applicable to DR.
Response: By "reactive component" the FMDRAT is pointing to the fact that DR "reacts" to instructions or market mechanisms. The FMDRAT recognizes that some DRs play an active role to bid into reserve markets or offers the service on a contractual basis, and its service can be provided actively or passively. Regardless of the type of service DR provides, the fact is that DR responds to instructions/signals, and they do not actively change the conditions of the BES like their generator counterparts which can move spontaneously or respond to system condition changes such as a fault or voltage change.		
Clallam County PUD No.1	Yes	
Xcel Energy	No	If DR is used as reserves, then it does allow the BES to serve more load.
Response: The FMDRAT respectfully disagrees. DR, when used as a reserve, will help to serve different load by virtue of the DR dropping off from the served list. There is no net gain/increase in the total amount of load to be served unless the DR provider injects local generation in lieu of dropping load.		
Flathead Electric Cooperative, Inc.	Yes	
FirstEnergy Corp	Yes	FirstEnergy agrees that DR will not expand the capability of the system and is unable to spontaneously respond to system changes in order to ensure acceptable system performance.

Organization	Yes or No	Question 6 Comment
Response: Thank you for the support.		
Independent Electricity System Operator	Yes	We agree with most of Conclusion 6 but disagree with the point that DR does not expand the system's capability to serve more load. DR is a resource similar to any other supply-side resource and an entity may choose to utilize that resource in a manner that allows it to serve more load through, for example, peak shaving to allow for growth of baseload. See our further comments in response to Q8.
Response: We agree that DR can help to shave peak demand and it can help to serve different load by virtue of the DR dropping off from the served list. However, there is no net gain/increase in the total amount of load to be served.		
New York Independent System Operator	Yes	At its most basic level, demand response is a change in electric use from normal consumption patterns and as such, it can be considered as a derivative product. Demand response programs for reliability organize the resources that are willing to change their consumption pattern under specific conditions so that the BES can deploy them when traditional supply resources are unable to meet current needs. Having said that, in New York, Demand Response does move in response to dispatch instructions when their reduction is offered for reserves and regulation. These resources are a component to meet the existing ancillary service product standards.
Response: Thank you for the support. We agree that DR will respond to instructions, but not to system changes like their generator counterparts which may move spontaneously or respond to system condition changes such as a fault or voltage change.		
Lee County Electric Cooperative	Yes	
Westar Energy	Yes	
Manitoba Hydro	Yes	
Texas Reliability Entity	No	No, to the extent that DR is used with operating reserves in some Regions, including automatic underfrequency relay-based deployment, it does move in response to system changes. Certainly not all DR programs function in this way, and it is more limited than generator action.
Response: The FMDRAT assesses that the automatic underfrequency relay-based deployment will necessarily send a trip signal to		

Organization	Yes or No	Question 6 Comment
the DR to initiate the "response". This is not the type of "spontaneous response" the FMDRAT refers to in the conclusion. The "spontaneous response" in this conclusion refers to those that are associated with generators in response to system condition changes such as protection relay operation, AVR adjustment, governor action, excitation control, etc.		
American Electric Power	No	We do not believe we can support this argument, as once again, it infers that DR requirements themselves are not needed.
Response: Please see our responses to comments on Question 5 which addresses the need for developing reliability standards.		
Georgia System Operations	Yes	
Duke Energy	Yes	
Hydro-Quebec TransEnergie	Yes	
American Transmission company, LLC	Yes	
Georgia Transmission Corporation	Yes	
Ingleside Cogeneration LP	Yes	Perhaps the term "reactive" should be replaced with "non-active" or "passive" to avoid confusion with "reactive power components". Otherwise, we agree that the operating characteristics of Demand Response resources are very different than generation resources and increase the effective utilization of the BES as described in the report. Absent the incentive to provide responsive reserves, Demand Response would just be part of the forecasted load and the system would be planned and operated accordingly.
Response: Thank you for the support. We will consider making the changes as suggested.		
Salt River Project	Yes	
National Rural Electric Cooperative Association (NRECA)	Yes	NRECA agrees removing load from the BES does not increase the system's capability to serve more load.
Response: Thank you for the support.		
Public Service Enterprise Group	No	DR should not be considered purely a derivative product of the power system. In PJM and in the ISO-NE, DR participates in the forward capacity markets (in PJM the forward capacity market is also known as Reliability Pricing Model or RPM). In

Organization	Yes or No	Question 6 Comment
		those markets, DR is paid the same locational capacity price as generators in the same delivery zone. In the NYISO, DR also participates in the capacity market and receives the same capacity payments as traditional generators. Since capacity is one of the principal components of a reliable BES, DR must be considered more than a derivative component or reactive product of the BES. In addition, this finding ignores that in many cases DR is not just like generation, it is generation. For instance, the Midwest ISO recently indicated that it believes more than half of the total DR on its system is actually behind the meter generation(1). The instant White Paper provides absolutely no basis to distinguish between the reliability impact of a generating unit operated as a capacity resource based on the unit's location in relationship to a meter. (1) See Comments of Midwest ISO, Docket ID number EPA-HQ-OGC-2011-1030, filed February 2, 2012, p. 2 "Currently, MISO has approximately 8,000 MW of Load Modifying Resources to meet resource adequacy requirements. Of that 8,000 MW, over 4,500 MW of such Resources are from behind-the-meter generation including many internal combustion engines." (available at http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OGC-2011-1030-0012.)

Response:

The FMDRAT agrees with Public Service Enterprise Group that DR plays an active part in many markets. The FMDRAT's review is focused on allowing those markets to flourish as long as there is no measureable impact on reliability. Reliability impacts are envisioned, but, at least for now, the FMDRAT does not believe this is the time to standardize a growing resource based on the assessment that any adverse reliability impacts caused by DR mis-performance is duly addressed by current planning and operating practices.

The FMDRAT's finding is not denigrating the value or the participation of DR. The fact that there is no Functional Entity does not belittle the value of DR as the current market expansion indicates. Not having a functional entity does allow the marketplace to continue to design more options for DR (to take advantage of DR potential) rather than pinning DR down to its current state of participation. The assessment made by the FMDRAT, summarized in Conclusions (1) to (6), suggests that the MW impact of DR is assessed and managed by planning and operational planning processes, DR facilities are no different from the LSE facilities, and

Organization	Yes or No	Question 6 Comment
DR aggregation is purely a business arrangement which has no adverse impacts on BES reliability. There does not appear to be a need to define a DR function and a DR functional entity at this time. Further, there is no perceived need to develop reliability standards to enforce commercial arrangements. This approach is not inconsistent with the one applied to generators' bidding or commitments to produce. **From a MW adjustment viewpoint, a DR's obligation to drop out is not much different from a generator's obligation to produce, and both are subject to commercial or contractual agreements for which there are no reliability standards to enforce compliance. From a physical performance perspective, DR differs from generators in that DR does not react "spontaneously" to system condition changes whereas a generator does so through such actions as protection relay operation, AVR adjustment, governor action, excitation control, etc., which do have certain impacts on reliability.**		
ISO-NE	No	As DR is treated comparably to other resources, it may have the impacts for which appropriate Reliability Standards would support acceptable performance.
Response: As indicated in the response to comments on other questions, from a resource commitment perspective, the FMDRAT does not see a need to develop reliability standards to enforce commitments that are already bounded by business agreements. From a facility perspective, the LSEs are already assigned the responsibility to comply with applicable standards. From an aggregation perspective, there is not a need to impose standards on the provision of a business service.		
Kansas City Power & Light	Yes	The FMDRAT has captured the essence of what the NERC Reliability Standards represent in MOD Standards 018 through 020 regarding demand response actions and effects and have drawn appropriate and reasonable conclusions.
Response: Thank you for your support.		
ERCOT ISO	Yes	
Constellation Energy Commodities Group	Yes	
Southwest Power Pool - RTO	Yes	Providing the use of the term 'reactive' is meant to imply that DR is a responsive component of the power system. When I first saw the term 'reactive' I was confused by the possibility that some reference was being made to reactive power. I would suggest changing this term to 'responsive' or some other term to eliminate the possibility of confusion

Organization	Yes or No	Question 6 Comment
Response: Thank you for the support. We will consider making the changes as suggested.		

7. Do you agree with the Recommendations presented in the DR Report:

a. DR functions and their associated functional entities not be defined and introduced to the Functional Model at this time.

b. The FMWG continue to monitor DR development and identify if and when DR technology and penetration levels create a unique impact on BES reliability.

If not, please explain in the comment area.

Summary Consideration:

The majority of commenters support the recommendations made in the DR Report.

Several commenters felt that the progress of DR development should be monitored with a threshold established for including DR in the Functional Model, but such actions are beyond the scope of the FMDRAT. The FMWG will decide future steps for adding DR to the Functional Model which could include establishing such a threshold.

Several commenters felt that inclusion in the Functional Model was necessary to make reliability standards applicable to DR entities, but this may be a misconception. Inclusion in the Functional Model is not necessary for an entity to be held responsible for reliability standards.

Organization	Yes or No	Question 7 Comment
PJM	Yes	
Pepco Holdings Inc & Affiliates	No	Regional transmission organizations such as PJM routinely rely on DR resources to ensure system reliability, and DR resources are included in the PJM reliability resource market mechanisms. The model should recognize the role of DR resources in providing resource adequacy.
Response: **There are no standards mandating resource adequacy (NERC and FERC do not have jurisdiction to impose such a mandate). There is a mandate to assess resource adequacy and this report's findings would not change anything that is done today. The FMDRAT agrees that DR does provide capacity benefits, but there is no compelling reason to mandate DR (or any generators, for that matter) to provide resource adequacy and develop standards to enforce this obligation.**		
Bonneville Power Administration	Yes	BPA agrees that with item (a) as to not being defined, introduced or be a part of

Organization	Yes or No	Question 7 Comment
		the functional model at this time. Additionally, BPA agrees with (b) and supports that even though it doesn't need to be a part of the functional model, it still can be used as a tool.
Response: The FMDRAT thanks you for your comment.		
Florida Municipal Power Agency	Yes	
ACES Power Marketing Standards Collaborators	Yes	Given that DR is still not mature, this seems like a very reasonable approach.
Response: The FMDRAT thanks you for your comment.		
NERC Staff	No	
PJM Power Providers Group		Please see comments in Question 8
Electricity Consumers Resource Council (ELCON)	Yes	
Southwest Power Pool Regional Entity	Yes	While SPP RE agrees with the DR Report Recommendations at this time, we recommend the FMWG consider undertaking a study to establish a threshold or criteria to determine at what point controllable DR technology and penetration levels could impact reliability. As DR reaches this level, it would be just as important for system operators to know what DR resources are available and the rules behind DR use (such as how many times per month they may be used) as it would for them to know what generator capability is available at any time. Examples of standards that may be applicable to DR resources that would give system operators this information are some of the TOP and COM standards.
Response: The FMDRAT thanks you for your comment. The DR Report will be reviewed with the FMWG who will decide the next steps with regard to establishing a threshold criterion for including DR in the Functional Model or reliability standards.		
Electric Power Supply Association		Please refer to answer to Question #8
LG&E and KU Services	Yes	
NRG Energy, Inc. ("NRG")	No	It is critical that NERC input DR functions and their associated functional entities into the functional model immediately. Penetration into parts of the country is already at or near the level of assigned reserve margins, and is growing fast. It is

Organization	Yes or No	Question 7 Comment
		well past time to include DR in the functional model.
Response: Members of the FMDRAT represented a broad range of energy markets, operating functions and geographic/operational footprints. The consensus of this diverse group was that inclusion of DR entities in the Functional Model was not needed at this time. The group concluded that even in areas where DR is a significant resource, mechanisms (market rules, contractual agreements, terms of service, etc.) exist to encourage expected DR performance. In the scenario where DR fails to perform, existing reliability entities are still responsible (and have the means available) to ensure BES reliability is maintained.		
Clallam County PUD No.1	Yes	
Xcel Energy	Yes	We suggest item b should state "The FMWG should develop proposed concepts for the DR function and continue to monitor DR development and identify if and when DR technology and penetration levels create a unique impact on BES reliability."
Response: The FMDRAT thanks you for your comment. The FMDRAT explored the concept of drawing parallels between the GO/GOP functions and potential DRO/DROP functions. The concept may have merit but was not adopted by the FMDRAT. The commenter may provide specific DR concept suggestions to the FMWG.		
Flathead Electric Cooperative, Inc.	Yes	
FirstEnergy Corp	No	As stated above FirstEnergy is concerned with the amount of reliance placed on DR resources in planning and operations of the bulk electric system and that NERC reliability standards serve as a mechanism to better ensure that DR resources respond when called upon. We are also concerned with the lack of a longer term commitment from DR resources and believe NERC reliability standards could drive greater consistency for its implementation.
Response: Inclusion of DR entities in the Functional Model does not necessarily mean reliability standards would become applicable. The development of DR requirements or application of existing requirements to DR entities entails a separate process than the inclusion of DR entities in the Functional Model.		
Independent Electricity System Operator	Yes	See our further comments in response to Q8.
New York Independent System Operator	Yes	
Lee County Electric Cooperative	Yes	We concur with the advisory team assessment and recommendation NOT to create

Organization	Yes or No	Question 7 Comment
		an additional Entity/Function."
Response: The FMDRAT thanks you for your comment.		
Westar Energy	Yes	
Manitoba Hydro	Yes	
Texas Reliability Entity	Yes	Yes, if there is a commitment to further study to establish penetration levels - and perhaps to limit application to certain roles. Within limited roles, certain DR could be considered a candidate for incorporation in the model sooner but it may not fit all Regions. The group is correct that many DR roles may be presently handled contractually or within Regional criteria, but it should continue to monitor as our industry considers a larger role for demand management.
Response: The FMDRAT agrees with the commenter that the reliability role of DR resources can be significant on a regional/market level and reliability aspects of DR performance might be best addressed on the same regional/market level.		
American Electric Power		In general, the arguments made by the FMDRAT call into question not only the need to create DR functional entities, but also (and probably unintentionally) the need to have DR at all. As a result, the conclusions reached by the team seem too weak to support the recommendations they ultimately reached. If having DR is indeed beneficial to the reliability of the BES, then functional entities should be created to properly shoulder those responsibilities. We are confident that the FMWG will monitor the situation, but we have concern that pressure for DR related requirements could be mandated faster than a functional entity could be established. We believe that it would be better to properly identify those who perform DR-related duties by the creation of the DR functional group, rather than place existing and future DR requirements on existing functional groups whose primary duties do not involve DR.
Response: The FMDRAT does not agree with the suggestion to create DR entities in the Functional Model in anticipation of expedited, future DR related standards/requirements. The FMDRAT concludes the current reliability role of DR to the BES is limited but that role could grow. In the scenario where mandated DR reliability requirements create a timing conflict with inclusion of DR entities in the Functional Model, reliability requirements could be developed independently of changes to the		

Organization	Yes or No	Question 7 Comment
Functional Model to meet the mandated schedule.		
Georgia System Operations	Yes	
Duke Energy	Yes	It will be important to reevaluate the conclusions that the recommendations are based on as Demand Response continues to evolve.
Response: The FMDRAT thanks you for your comment.		
Hydro-Quebec TransEnergie	Yes	
American Transmission company, LLC	Yes	
Georgia Transmission Corporation	Yes	
Ingleside Cogeneration LP	Yes	Ingleside Cogeneration LP agrees that there is no need to define DR functional entities and include them in the Functional Model because it is not required to maintain an Adequate Level of Reliability of the BES. In addition, as stated in the report, requiring DR resources to adhere to even a limited number of NERC Standards could have a chilling effect on the development of this additional reserve resource that requires no additional system capital investment (as would additional generation reserves). There is no evidence in either operations or planning functions that imposing reliability standards on Demand Response is necessary.
Response: The FMDRAT thanks you for your comment.		
Salt River Project	Yes	
National Rural Electric Cooperative Association (NRECA)	Yes	NRECA supports the recommendations include in the DR report specifically that DR functions and any associated functional entities nor be defined and introduced to the Functional Model.
Response: The FMDRAT thanks you for your comment.		
Nebraska Public Power District	Yes	
Public Service Enterprise Group	No	NERC should include DR in the next version of the Functional Model. NERC should consider including functions for Demand Response Ownership and Demand

Organization	Yes or No	Question 7 Comment
		Response Operation.
Response: The FMDRAT thanks you for your comment. The FMDRAT explored the concept of drawing parallels between the GO/GOP functions and potential DRO/DROP functions. The concept may have merit but was not adopted by the FMDRAT. Due to the wide range of configurations of existing DR owners and operators across the BES, the definition and identification of DROs and DROPs would be complicated and may not be appropriate – the best solution may be on the regional/market level.		
ISO-NE	Yes	The FMWG should continue to convene and monitor this issue.
Response: The FMDRAT thanks you for your comment.		
Kansas City Power & Light	Yes	
ERCOT ISO	Yes	
Constellation Energy Commodities Group	Yes	
Southwest Power Pool - RTO	Yes	

8. If you have any other comments on the DR Report that you haven't already mentioned above, please provide them here.

Summary Consideration:

A summary response is not provided here since many commenters further elaborated or repeated their comments already provided in response to the previous questions. However, one-on-one responses are provided to all comments submitted on this question. Commenters are referred to the detailed responses, below.

Organization	Yes or No	Question 8 Comment
PJM	No	
Pepco Holdings Inc & Affiliates	No	
Bonneville Power Administration	No	
Florida Municipal Power Agency	Yes	Under Section 3.2, Observation 2 starts with the sentence: "TOPs or BAs are responsible for managing the load and supply balance in their control areas." This is not true, only the BA does this. Hence, TOP should be struck from Observation 2.
Response: Thank you for pointing this out. The report will be revised accordingly.		
ACES Power Marketing Standards Collaborators	No	
ACES Power Marketing Standards Collaborators	No	
NERC Staff	Yes	NERC Staff comments on Final Report: Assessing the Need for Introducing Demand Response Functions and Entities to the NERC Reliability Functional Model NERC Staff appreciates the Functional Model Demand Response Advisory Team (FMDRAT) initiative to assess a need for introducing demand response functions and entities in the NERC Reliability Functional Model. NERC Staff believes strongly that a potential reliability gap either exists or may exist if operators of large aggregations of demand resources are not held to the same reliability

Organization	Yes or No	Question 8 Comment
		obligations of other resource operators given: o the current and projected penetration levels of demand resources, o the need to exchange reliability information and data related to demand resources, o the applicability of critical infrastructure protection standards to demand resources, and o the statutory obligations of NERC to develop and enforce Reliability Standards for users, owners and operators of the BPS (BPS). These comments provide NERC Staff's perspectives on demand response as well as respond to the conclusions and recommendations of the FMDRAT report. Background: Demand response is one of many resources needed to satisfy the increasing demand for electricity in North America. In addition to providing capacity for resource adequacy and planning purposes, capacity and ancillary services provided by demand response help ensure resource adequacy while providing operators with additional flexibility in maintaining operating reliability. However, demand response is still a relatively new resource, and both NERC and stakeholders need to start measuring its performance in order to gauge its benefits and impacts on reliability. Better performance measures will also help develop industry confidence in demand response. **[Response: That is the position of the FMDRAT, also. Given the industry's growing use of DR, there will be ample opportunity to build experience and compile performance data to assess its reliability impact and benefit to providing capacity and/or resource adequacy and/or reserve. The FMDRAT does not believe that this data collection process needs to be enforced or initiated by creating a DR function, a DR entity or reliability standards.]** Further, system planners and operators need to understand the characteristics of these resources (e.g., frequency response impacts, modeling assumptions) and the potential impacts to their systems. As demand response becomes relied upon more heavily to meet

Organization	Yes or No	Question 8 Comment
		firm demand in these capacities, more coordination between demand response program administrators, system operators, and system planners is needed to fully assess the resource's availability, characteristics, and constraints. **[Response: The FMDRAT agrees with NERC that system planners and operators need to understand the characteristics of these resources (*e.g.*, frequency response impacts, modeling assumptions) and the potential impacts to their systems. The FMDRAT, however, does not see a need to define a DR function and a DR entity, or the development of reliability standards to achieve this understanding. With respect to the suggestion on coordination, it is not clear what additional coordination is needed, or where needed what additional coordination can be expected from a DR entity which at present cannot otherwise be achieved through coordination with the Load Serving Entity.]** For example, as dispatchable demand response programs are increasingly used as non-emergency resources, the probability and frequency of their dispatch will also likely increase. Third-Party Demand Response Provider (also referred to as Curtailment Service Provider (CSP))Some operating areas (e.g., Balancing Authorities, Load Serving Entities, Transmission Operators, and Distribution Providers) control and administer their own programs; however, many NERC Registered Entities contract specialized third-party demand response services, also known as Curtailment Service Providers (CSPs). These entities control and operate demand response resources at the direction of the system operator. In some areas of North America, a single CSP can operate demand response resources totaling hundreds to thousands of megawatts. Because there is not a separate category in the functional model for CSPs, to ensure all users, owners or operators are subject to compliance with FERC-approved Reliability Standards it is important to address the need for CSP Reliability Standards and applicable entity registration criteria. Otherwise, there may be a need to evaluate existing categories to address the issue. NERC staff comments are directed to a gap that may exist.

Organization	Yes or No	Question 8 Comment
		[Response: The FMDRAT would draw the commenter's attention to the Balancing Authority/Reserve Sharing Group (BA/RSG) model. The Functional Model defines a Balancing function and a Balancing Authority functional entity. The BA is responsible for determining reserve requirements and managing the provision of reserve to maintain resource-demand-interchange balance. A group of BAs may decide to provide the required reserve as a RSG. It is made clear in the Functional Model that where a number of organizations that perform a given Function form a single group, the Model recognizes this as a business arrangement among organizations, not a new Function and corresponding new functional entity. When a group of Load Serving Entities (LSEs) that offer DR services and decide to contract the task of responding to DR instructions with a CSP, then the CSP is performing one of the basic LSE functions. A reliability standard, even allowing for the assumption that it's needed and developed to mandate specific performance of DR to preserve reliability, can make the CSP responsible on behalf of the individual LSEs that provide a DR service. Thus, the FMDRAT does not see a need to define a curtailment service function or a DR function, or a CSP or a DR aggregator as this function is not new or unique, and the entity to perform such functions has been defined which is essentially the LSE. **In general, NERC standards (at least to date) have been developed holding an individual entity responsible but with an understanding that the individual entity could join with others to become a group to meet their collective obligations. But, the obligations are written to the entity and not to its market solution.]** CSPs operate demand response resources that participate in capacity, energy, ancillary services, and emergency programs. In parallel, generation resources participate in the same programs. However, Generator Operators must comply with all NERC Reliability Standards that relate to the requirements for how generators must manage data and information exchange, control room physical and cyber security, and coordination with the Reliability Coordinator and Balancing Authority. Before Reliability Standards for CSPS are developed, the functions of a CSP must be incorporated into the NERC functional

Organization	Yes or No	Question 8 Comment
		model. **Response: The concept that there needs to be a functional entity before standards are created is not an issue. The issue is whether or not the function is new or unique, and whether or not the proposed functional entity performs tasks that are new or unique and currently not performed by any of the defined functional entities. Please see our rationale above for not seeing a need to define CSP in the Functional Model at this time.** **If a group of defined functional entities were to perform certain tasks that are assigned to individual entities for efficiency gains or cost savings or any other reasons via a contractual arrangement, e.g. the TOPs, and adopt a name, then by the argument made by the commenters it is conceivable that the Functional Model needs to be revised to introduce a new function and a new functional entity every time a group of functional entities decides to form a group to perform assigned tasks collectively on their behalf. This is not the driver or fundamental premise of the Functional Model.** NERC staff notes that several potential options to address CSPs could be developed: o The potential options included in the FMDRAT report (Section 3.5 - DR Ownership and Operations - roles and relationships with others and Appendix A). NERC staff agrees "that a parallel to the tasks and relationships developed for the Generator Ownership and Generator Operations and their respective functional entities could be drawn for DR" and recommend this option to be more fully explored. o The NERC defined terms for Generator Owner and Generator Operator could be changed to Resource Owner and Resource Operator. However, with this option, certain requirements would be applicable to Generator Operators only, while the same requirements may not be applicable to a demand resource operator. o A Purchasing-Selling Entity (PSE) is defined in the Functional Model as: "The functional

Organization	Yes or No	Question 8 Comment
		entity that purchases or sells, and takes title to, energy, capacity, and reliability related services." Seemingly, a CSP may meet the criteria for a PSE and may be required to register. However, Reliability Standards for PSEs do not include requirements for control room physical and cyber security and may not fill all the potential gaps. Should CSPs not be included in the NERC Compliance Registry, reliability risks will increase as the amount of and reliance on demand response increases. CSPs with a qualified amount of registered and controllable demand response contributing to BPS reliability should be registered to follow NERC Reliability Standards. **[Response: The FMDRAT, in its report, did present a draft outline of what a DR Ownership and Operation function may be like, and the perceived tasks for a DR Owner and a DR Operator purely for the purpose of comparison with the function and tasks for GO and GOP. The need to define the DR functions and functional entities is determined by whether or not these are new or unique functions not currently performed by other defined functional entities. The FMDRAT at the end of its deliberation did not come to a conclusion that there are new or unique functions that are outside of the scope of the Functional Model to point to a need to define such functions and entities. The FMDRAT would also note that if there is a desire to write a standard for the proposed CSP entity, options are available to proceed even without having a functional entity defined – as shown by the fact that standard requirements are now in place for Reserve Sharing Groups even though an RSG is not a defined functional entity.]** Effects to Reliability: Demand response is able to provide many different types of services and can be developed and configured to support specific needs of a given operating area. For example, some programs are developed to only provide peak shaving capability during a capacity deficiency or other emergency-that is, during peak periods a system operator can dispatch those resources to manage peak demand. These types of programs usually have a limited number of contracted interruptions with the demand response provider on a per month basis. Other programs are developed to provide load as a capacity resource on a

Organization	Yes or No	Question 8 Comment
		24x7 basis, either providing ancillary services or economically dispatched, similarly to a generator. In either of the examples above, demand response plays a crucial role in maintaining the reliability of the BPS. Most particularly, those demand response programs providing ancillary services are critical to BPS operations. **[Response: The FMDRAT agrees that DR can provide different services and can contribute to enhancing reliability. The FMDRAT would note that DR is already being included in a Resource Planner's long term adequacy assessment and in a Balancing Authority's operational plans for reserve sufficiency. This is already in place without the need for any reliability standards. Dependency on DR performing as requested is expected but the FMDRAT's assessment and conclusion is that such expectation cannot and should not be mandated by reliability standards over and above contractual agreements to be comparable with similar expectations for generators to be producing at the bid or instructed level. A general survey of representatives across the industry suggests that there are build-in assumptions to manage the risk that the expected capacity or reserve provided by DR may not materialize, *i.e.,* DR fails to perform as expected. It is the basis of Conclusion 1 that DR's non-performance does not pose adverse reliability impacts on the BES for which there is no recourse. This is the same argument that failure of a generator to produce at the expected level does not pose adverse reliability impacts on the BES for which there is no recourse since Resource Planners and Balancing Authorities must guard against the risk of generators not producing or not on line at all, or tripping out at any time.]** Ancillary Services Ancillary services are foundational and fundamental in supporting BPS reliability. Ancillary services (e.g., contingency reserve, spin/non-spin reserve, regulation) are used to control system frequency and ensure system reliability due to variability of load, inaccuracies in the prediction of load levels, or the unplanned loss of resources or transmission. NERC defines ancillary services as:"Those services that are necessary to support the transmission of capacity and energy from resources to loads while maintaining reliable

Organization	Yes or No	Question 8 Comment
		operation of the Transmission Service Provider's transmission system in accordance with good utility practice. (From FERC Order No. 888-A.)" The NERC definition clearly states that ancillary services support the transmission of electric power and maintain reliable operations. Therefore, operators of resources providing ancillary services may be considered BPS as well. Recent data and information provided to NERC during its seasonal and long-term reliability assessment suggest the potential for significant growth in using demand response to provide ancillary services. Even today, the Electric Reliability Council of Texas estimates that over 1,000 MW provide spinning reserve service in Texas-half the total spinning reserve requirement. These programs are expected to significantly increase in other areas as well, most particularly in the ISO/RTO structured market areas. The NERC Glossary of Terms defines Spinning Operating Reserve as:"The portion of Operating Reserve consisting of: o Generation synchronized to the system and fully available to serve load within the Disturbance Recovery Period following the contingency event; or o Load fully removable from the system within the Disturbance Recovery Period following the contingency event."In order for load to be fully removable from a given system within certain time constraints (spinning reserve within 10 minutes), the operator of these resources should be in full coordination with the Planning Coordinator, Reliability Coordinator, Balancing Authority, and Transmission Operator. This is a significant task, but a logical step when identifying reliability gaps. **[Response: The FMDRAT agrees that DR can provide different services; however, the FMDRAT would point out that DR is already doing so without the need for standards. Please see our response above for further details on the rationale for not having to develop reliability standards to enforce contractual arrangements involving DRs.]** Capacity Resources Capacity Resources and how they relate to resource adequacy is a fundamental reliability concept. The NERC Glossary of Terms defines resource adequacy as "the ability of supply-side and demand-side resources to meet the aggregate electrical demand (including losses)". Capacity resources ensure areas of the BPS have enough resources compared to

Organization	Yes or No	Question 8 Comment
		the projected peak demand to maintain a sufficient level of resource adequacy (e.g., Planning Reserve Margin and LOLE criteria). Historically, electric generators provided most of a given area's capacity resources. However, today, many areas have a significant amount of load as a capacity resource-a type of demand response that typically provides capacity services similar to a generator and is relied on by operators to meet resource adequacy criteria. Generators with the same reliability obligations concerning capacity resources must follow NERC Reliability Standards. This includes sharing and exchanging data for modeling, planning, and operations, maintaining a secure control facility, and operating based on the NERC Reliability Standards framework. Growth in Demand Response Penetration levels are already high in certain areas (See Figure A). The NERC 2011 Summer Reliability Assessment shows the two largest ISO/RTOs, and MISO, each expecting approximately 8 percent of their total internal demand to be available to provide demand response-an unprecedented level. ISO-NE, a significantly smaller operating area with advanced demand response programs, expects 7.5 percent. These values represent demand response that is being counted as capacity and used to maintain a specified Planning Reserve Margin. Moreover, these values represent an expected value, while the "enrolled" or "registered" capacity is greater. Figure A: 2011 Summer Projected Dispatchable, Controllable Capacity Demand Response **[Response: The FMDRAT agrees that DR can provide different services; however, the FMDRAT would point out that DR is already doing so without the need for standards. Please also see our response above for further details on the rationale for not having to develop reliability standards to enforce contractual arrangements.]** Given the necessary time it takes for Reliability Standards to be written or enhanced, now is the time to start developing Reliability Standards, in preparation for more demand response penetration in the future. While the expected dispatchable and controllable-type demand response constitutes approximately 40 GW, this amount is projected to grow to almost 50 GW by 2021 (this assumes zero growth beyond commitment periods which are generally one to four years) (See Figure B). Figure B: Source: Form EIA-411,

Organization	Yes or No	Question 8 Comment
		Coordinated Bulk Power Demand and Supply Report submitted by NERC In addition to these values, non-dispatchable and/or price-sensitive demand resources also being deployed on an often daily basis. NERC has yet to collect enrollment data on these resources, but expects to start collecting such data in Phase III and IV of the Demand Response Availability Data System. Critical Infrastructure Protection Because of the recent and expected growth in demand response, CSPs are expected to control more demand resources to supply reliability services to the BPS. With that expected growth and control comes pressing critical infrastructure concerns, both physical and cyber security, that must be addressed expeditiously in order to mitigate any potential risk to the BPS. The proposed Critical Infrastructure Protection (CIP) Reliability Standards (version 5) set "bright-line" criteria for identifying cyber assets. While the "bright-line" criteria for identifying cyber assets specifically refers to generators and generator control centers, parallel controls specified in CIP standards may need to apply to demand response operators that control resources greater than a certain threshold. CIP-002-5 Attachment I specifies how assets are categorized to determine their applicability to CIP standards. As with generators, the following criteria may apply to demand response operators: 2.1. Generation with an aggregate highest rated net Real Power capability of the preceding 12 calendar months equal to or exceeding 1500 MW in a single Interconnection. 2.3. Each generation Facility that its Planning Coordinator or Transmission Planner designates and informs the Generator Owner or Generator Operator as necessary to avoid BPS Adverse Reliability Impacts in the long-term planning horizon. 2.13. Control Centers not included in High Impact Rating (H), above, that perform (1) the functional obligations of Transmission Operators or Transmission Owners; or (2) generation control centers that control 300 MW or more of generation. Furthermore, the CIP-002-5 Application Guidelines specifically state:"The Balancing Load and Generation Operations Service includes activities, actions and conditions necessary

Organization	Yes or No	Question 8 Comment
		for monitoring and controlling generation and load in the operations planning horizon and in real-time. Aspects of the Balancing Load and Generation function include, but are not limited to: o Demand Response o Ability to identify load change need (BA) o Ability to implement load changes (TOP,DP) o Manually Initiated Load shedding o Ability to identify load change need (BA) o Ability to implement load changes (TOP, DP) o Non-spinning reserve (contingency reserve) o Know generation status, capability, ramp rate, start time (GO, BA) o Start units and provide energy (GOP)" Unmitigated risks to BPS reliability will remain should demand response operators controlling a significant amount of resources not be subjected to applicable CIP standards. Recent study work completed at Pacific Northwest National Laboratory by Jeff Dagle analyzes the power grid impacts resulting from unintentional demand response. The major recommendations from Mr. Dagle's study include: o Now that it is becoming possible for large amounts of load to be simultaneously manipulated, it is important for utilities to consider this as a "credible contingency" in the context of planning and operational contingency analysis. o Measures should be taken to limit the amount of load that can be controlled from a single point of access (need segmentation, isolation). o Cyber security measures to prevent malicious (or accidental) triggering of unintended load changes remains of paramount importance. **[Response: The FMDRAT respectfully disagrees with the commenter that CIP-002-5 places any obligations to the entities that own and/or operate DR (or aggregated DRs) to identify critical assets and critical cyber assets based on size, location or impact. In**

Organization	Yes or No	Question 8 Comment
		fact, the draft CIP-002-5 does not even place such obligations to the LSEs, which may serve as a surrogate for DRs (when loads offer such services) as the applicability of the standard is confined to LSEs that have Facilities that are part of any of the following systems or programs designed, installed, and operated for the protection of the BES: • A UFLS program required by a NERC or Regional Reliability Standard • A UVLS program required by a NERC or Regional Reliability Standard which is independent of the MW size. Much of the excerpt of CIP-002-5 Attachment 1 and Guideline appears to apply to the entities that own or operate BES Cyber Assets and BES Cyber Systems that could impact the reliable operation of the BES. As indicated in the draft standard, in order to identify them, Responsible Entities determine whether the BES Cyber Assets perform or support any BES Reliability Operating Services. In the presentation of the BES Reliability Operating Services, it is indicated that the scope of the CIP Cyber Security Standards is restricted to BES Cyber Assets and BES Cyber Systems that would impact the reliable operation of the BES. In order to identify them, Responsible Entities determine whether the BES Cyber Assets perform or support any BES Reliability Operating Service. These services are functions that provide services for the reliable operation of the BES and are based on the functions defined in the NERC Functional Model. This ensures that the initial scope for consideration includes only those BES Cyber Assets and BES Cyber Systems that perform or support BES Reliability Operating Services. The definition of BES Cyber Asset provides the basis for this scoping. Note that in Attachment 1 and the Guideline, the responsibility for the reliable operation of the BES is spread across all Entity Registrations except LSEs. Demand Response is included as operational measure in the “Balancing Load and Generation Operations Service”, which is the responsibility of a BA, not the Load-Serving Entity or

Organization	Yes or No	Question 8 Comment
		the DR owner or operator (if they were defined). From a BPS operations perspective, the accidental loss of significant load could result in system instability and decreased flexibility. System operators need visibility of their systems which includes resource availability and characteristics. Further, cyber and physical security for control centers would reduce the risk of malicious or accidental triggers or other system operation failure. As control centers increase their service territories and controlled capacity, the greater the risk becomes in terms of a single point of failure. **[Response: The FMDRAT would note that viability of the amount of DR that can be lost is already provided through a number of different channels. Loads that offer to drop off based on a commercial or contractual agreement are known to operating entities via the commercial/contractual mechanism and therefore a reliability standard to enforce a provision of this information to the operating entities appears redundant. Furthermore, the FMDRAT would note that the commenter does not seem to be discussing the need to create a DR function and functional entity but rather the need to create a third party aggregator. This is a different discussion that falls outside of the scope of this review.]** Responses to FMDRAT Conclusions and Recommendations The conclusions and recommendations of the FMDRAT report do not include the creation of functional entities to support the introduction of CSPs. The NERC staff position is that CSPs should be NERC Registered Entities, based on specified criteria (similar to the generator threshold level in the pending BES definition). **[Response: The generator threshold is an asset level criterion whereas CSP are virtual entities. The FMDRAT's report is about assets, not virtual third party solutions. Also, please see our response on the commenter's proposal to create the CSP (which in our view is similar to the RSG whose basic function is balancing, presently performed by the BA).]**

Organization	Yes or No	Question 8 Comment
		Furthermore, NERC staff generally agrees with the minority opinion noted in the report. However, NERC Staff does not agree with the statement that:" [I]f DR is not introduced to the Functional Model and if DR were required to meet the same Reliability Standards, then a number of standards currently applied to GO and GOP, as listed in Appendix B, should be removed from the NERC Reliability Standards." Conclusion #1 - "...Compared to sudden load increase and generator tripping, DR's spontaneous performance or failure to perform as instructed does not pose adverse reliability impacts on the BES for which there is no recourse. "Demand response operators provide services similar as generator operators (i.e., providing energy, capacity, and ancillary services); however, demand response operators or CSPs are not held to the same level of reliability as generator operators. As noted in the Effects to Reliability above, demand response provides beneficial services for the reliability of the BPS. Whether demand response is triggered to provide ancillary services for an unplanned generator outage or to shave the peak demand during a capacity deficiency, the operators controlling the demand resources are providing significant reliability services that should fall under BPS Reliability Standards. **Response: The FMDRAT agrees that DR provides this operating flexibility, but such flexibility should not be mandated via reliability standards unless an action or inaction by the DR can result in adverse reliability impact for which there is no recourse.** Conclusion #2 - All responsible entities have some measures in place to guard against the possibility that a DR resource does not fulfill its obligations to provide the agreed amount of reserves. NERC Staff agrees with conclusion #2 regarding the enforcement of Reliability Standards on the performance of a resource (e.g., available, unavailable, partially available). However, NERC staff requests that the FMDRAT provide evidence that "measures in place to guard against the possibility that a demand response resource does

Organization	Yes or No	Question 8 Comment
		not fulfill its obligations to provide the agreed amount of reserves." Moreover, NERC staff notes that measures taken voluntarily may not be equivalent to mandatory measures (e.g. NERC Reliability Standards before 2007). **[Response: The FMDRAT agrees with this view. However, generators participating in a market and producing at the bid or requested level is also voluntary, and this has been in effect since 1977 when the electric industry was deregulated. At present, there does not exist any reliability standards, nor has anyone in the industry identified a need to develop a reliability standard, to enforce voluntary measures. If reliability standards were to be developed to enforce voluntary measures or commercial arrangements, such as loads participating in DR programs, it is conceivable that such a move can result in double jeopardy that will discourage entities from participating in the DR program, and reduce if not eliminate future innovations.]** Conclusion #3 - For long-term planning, most entities include contributions from DR to some extent. Uncertainties associated with DR's long-term commitment to remain "dispatchable" are typically addressed by applying a discount factor or probability analysis to DR's availability in resource adequacy assessments. Demand response characteristics can affect the BPS. The objective of requiring CSPs to register as a NERC Registered Entity is to ensure all stakeholders have an expectation of what the performance of demand resources will be and sharing system information that will be beneficial to system planners and operators. NERC Reliability Standards are not in place to ensure generators and/or resources necessarily perform, but perform to a specific standard and within a range of acceptable performance, ensuring negative impacts to the BPS are not introduced. Additionally, the trigger of demand response within localized areas can cause shifts in frequency, reactive, voltage, and dynamic support. The sharing of resource characteristics for modeling is generally standardized in the NERC Modeling, Data, and Analysis (MOD) Standards, which can then be applied to planning studies. Generator Owners and Operators are currently responsible for providing data to ensure vital

Organization	Yes or No	Question 8 Comment
		information is shared through the NERC MOD Standards. This sharing of the specific data, including real power capabilities, reactive characteristics, ramp rate, and models, is essential to ensure the models reflect the most accurate representation of a given system. These studies are then shared so that interconnection-wide studies can occur. **Response: The FMDRAT does not disagree that certain information pertaining to loads participating in a DR program and the load's presence, tripping and characteristics can have various impacts on BES reliability. However, the FMDRAT expects that such information is already provided by the LSE. The creation of a DR function and functional entity appears to be redundant, unless such functions and the tasks to be performed by such entities can have a new or unique impact on the BES that is not already covered by other functions and entities.** Conclusion #4 - In operational planning, there are no known entities that count on DR as a critical component of their operational plans. An additional DR functional entity will not change the current role or responsibility of the planning coordinator, resource planner, or operations planner. NERC staff does not agree with the conclusion that, "In operational planning, there are no known entities that count on demand response as a critical component of their operational plans." Demand response is a key component of many operational procedures during times of emergency and peak conditions. Additionally, in operational planning, demand response providing ancillary services is critically important. Demand response is assessed in each NERC reliability assessment, including the operational assessment for the summer and winter peak periods. Many Assessment Areas are dependent on demand response to meet resource adequacy requirements. The following are examples of how a demand response functional entity may impact other entities: - In certain areas, demand response deployment is known day-ahead or next day (specifically in areas where DR is being economically dispatched and being used as a capacity resource, similar to a generator). It is important that the CSP controlling these resources coordinate with the balancing authority. - CSPs need adequate communications

Organization	Yes or No	Question 8 Comment
		with the operating entity to ensure they can perform when needed. It is possible to rewrite the NERC Communications (COM) standards by replacing the existing applicable functions with a CSP function (whether it be a Resource Operator or Demand Response Operator). Examples of how some of the existing NERC Reliability Standards that may be considered for demand response operators: o COM Standards o COM-002-2-Communications and Coordination o MOD Standards o MOD-19-0.1 - Reporting of Interruptible Demands and Direct Control Load Management o MOD-20-0 - Providing Interruptible Demands and Direct Control Load Management Data to System Operators and Reliability Coordinators o MOD-021-1 - Documentation of the Accounting Methodology for the Effects of Demand-Side Management in Demand and Energy Forecasts o MOD-024-1 - Verification of Generator Gross and Net Real Power Capability o MOD-025-1 - Verification of Generator Gross and Net Reactive Power Capability o CIP v5 Standards o Voltage and Reactive (VAR) Standards o Transmission Operations (TOP) Standards o TOP-002-2a - Normal Operations **Response: The FMDRAT is unclear on which specific responsible entities are to be replaced with the CSP. As indicated in the responses to earlier comments, similar to the RSG that is made up of a group of BAs, the FMDRAT does not think that creating the CSP is needed to fill any reliability gap or serve any new reliability need that is currently not taken care of by the LSEs that participate in a DR program. That said, the FMDRAT is open to suggestions if NERC staff or the industry can provide some examples of reliability standards or requirements that are required to fill this gap or address a reliability need currently not taken care of by the LSEs.**

Organization	Yes or No	Question 8 Comment
		Planning Recommendation #1 - DR functions and their associated functional entities not be defined and introduced to the Functional Model at this time. NERC Staff does not agree with this recommendation. The operation of a large amount of demand response is critical to BPS reliability as noted in the Effects to Reliability section. **The FMDRAT is unclear on the basis of the disagreement. The FMDRAT does say that DR doesn't have any reliability impact – positive or otherwise. Its recommendation was made based on an assessment that there does not appear to be any adverse reliability impacts caused by DR's non-performance (failure to operate or operate when not required) for which there is no recourse. Further, the FMDRAT assesses that the LSEs that participate in DR programs are in fact the entities that must provide the required information and comply with instructions/directives issued by operating entities, may they participate in a DR program or otherwise.** Recommendation #2 - The FMWG continues to monitor DR development and identify if and when DR technology and penetration levels create a unique impact on BES reliability. Recommendation #2 states that the FMWG should continue to monitor demand response development and identify if and when demand response technology and penetration levels create a unique impact on BES reliability. o How does the FMDRAT plan to monitor demand response development? o What is the trigger for demand response penetration levels that would constitute reevaluating the functional model? Further, Recommendation #2 states that whether or not demand response creates a unique impact on BPS reliability is dependent on technology and penetration levels. This notion indicates that as demand response penetration is increased, the potential risk to reliability is increased, which NERC staff agrees.

Organization	Yes or No	Question 8 Comment
		NERC staff notes the time needed to develop Reliability Standards should be compared to future demand response participation and new demand response products enabling new technologies to emerge. In terms of monitoring demand response performance, the NERC Demand Response Availability Data System provides enrollment and performance data for demand response programs across North America. The Planning Committee established a Demand Response Data Task Force (DRDTF) in early 2008 based on recommendation from the Demand-Side Management Task Force (DSMTF) that industry needed a more systematic approach for collecting and quantifying Demand Response performance. In its final report, Data Collection for Demand-Side Management for Quantifying its Influence on Reliability, the DSMTF concluded a uniform system measuring delivered Demand Response performance should be established by NERC, together with a system to collect these performance data on an ongoing basis. Most recently, the first data gathering effort for DADS data has been completed. The draft statistics shown in Figure C are preliminary values that have been collected as part of the 2011 summer period. This data is shown for the purposes of demonstrating the value DADS can have in evaluating reliability impacts of demand response. Most notably, the 133 reporting entities submitted data on 667 activations during the 2011 summer period. Figure C: DRAFT Phase II Preliminary DADS Data for 4/2011 through 10/2011 **[Response: The FMDRAT would point out that the data can be provided/collected without the need to resort to a standard.]** Conclusion Demand response is an inherently unique resource on the BPS. A contributing characteristic is that the resource is dispersed and the aggregate can be controlled by a third-party operator independent of the system operator. These entities operate resources on the BES, yet are not subject to the same Reliability Standards as other resource operators. Furthermore, when demand response is needed for grid reliability it is generally needed for emergency operations or supporting another reliability function.

Organization	Yes or No	Question 8 Comment
		Should a capacity deficiency be eminent, even a small amount of demand response could be vital in maintaining reliability. In these cases, adequate communications and accurate information and data is critical to ensure these resources can perform, and perform as expected. NERC Reliability Standards ensure that all key stakeholders, including users, owners, and operators, are planning and operating in the most reliable manner needed to comply with NERC Reliability Standards. NERC Reliability Standards are the industry's instruction manual on how to reliably plan and operate the BPS. **[Response: The concept that standards viewed by NERC staff to serve as instruction manuals on how to plan and operate may be the key to the reaction to the report. The FMDRAT looked at what is happening in the industry in the absence of a HOW TO guide, and looked at the evolution as a position occurrence. NERC staff intends to prescribe the plans and operations. The FMDRAT never envisions that usage of the standards. Our recommendations were based on an assessment of the need to create a function and a functional entity to address new or unique reliability issues, and on the concept of an expansion of options, rather than on memorializing today's set of solutions.]** Because NERC Reliability Standards exist, stakeholders know what to expect out of the performance and reliability of the BPS and understand the intricacies as well as the detailed technical engineering required to maintain an adequate level of reliability. It is clear that a reliability gap exists or has the potential to exist in the future. All resources operating the BPS should be responsible for maintaining data and information exchanges, supporting long-term and operational plans and needs, providing reliability services as resources on the BPS, and supporting a secure control center to operate those resources. In general, NERC staff agrees with the minority position in the report - that CSPs should be registered as NERC Registered Entities and should be required to comply with NERC Reliability Standards. The path to get there is not yet defined, but NERC staff appreciates the opportunity to further discuss a way forward.
Response: Please see in-line response. The NERC staff and the FMDRAT are in agreement about the changes in the DR		

Organization	Yes or No	Question 8 Comment
environment. **The FMDRAT's perspective is that there are a growing number of options and that it is better to let the market place decide which options or characteristics will work. When these market options are expected or have the potential to result in any new or unique adverse reliability impact on the BES without recourse, the FMDRAT will then assess the need to define a DR function(s) and a DR entity(ies) to address the reliability concerns. The NERC staff position is actually consistent with the report except that the NERC staff proposes one type of solution (CSPs) and to write standards/requirements to provide that solution. The FMDRAT views CSPs more as a business arrangement than as a reliability entity. The FMDRAT views CSPs as a type of third party market solution and to choose that particular solution may be premature or is best left to the industry and market participants to provide. The FMDRAT does not believe there is one preferred or best solution. While the FMDRAT suggests that there is time to let these and other solutions grow and evolve, that does not mean the ERO proposal to establish CSPs and reliability standards/requirements is preferred until such time it can be clearly identified that the CSP's action is unique to ensuring reliability (such as a BA to balancing resource-load-interchange). The FMDRAT simply views the current growth of market solutions and options as a sign of vitality and as long as there is no adverse reliability impact on the BES for which there is no recourse, or the reliability impact is new or unique for which there does not exist a function or a functional entity to take care of the concerns, that no one solution should be considered as a standard model.**		
PJM Power Providers Group	Yes	Comments of the PJM Power Providers Group On the Report of the Functional Model Demand Response Advisory Team on Assessing the Need for Introducing Demand Response Functions and Entities to the NERC Reliability Functional Model. Introduction On February 10, 2012, the Functional Model Working Group Demand Response Advisory Team ("FMDRAT") issued its Report on Assessing the Need for Introducing Demand Response Functions and Entities to the NERC Reliability Functional Model ("Report"). The FMDRAT assessed the role and reliability impacts of Demand Response ("DR") in the planning and operating horizons. The Report stated six conclusions and two recommendations. Generally, the Report concluded that DR does not impact reliability and specifically stated in Conclusion number five that: "Reliability standards are not required to enforce DR compliance with contractual agreements or obligations. There are

Organization	Yes or No	Question 8 Comment
		little or no reliability impacts caused by the failure of DR resources to perform as agreed to or as requested. Therefore imposing reliability standards to force compliance with commercial agreements would be inappropriate, may not achieve the desired outcome, and in fact may discourage entities from participating in DR programs." (FN1- Conclusion 5, Section 5.0 Conclusions and Recommendations of the FMDRAT Report, February 10, 2012.) The two recommendations stated in the Report were that: 1) DR functions and their associated functional entities not be defined and introduced to the Functional Model at this time, and 2) the Functional Model Working Group ("FMWG") would continue to monitor DR development and identify if and when DR technology and penetration levels create a unique impact on Bulk Electric System ("BES") reliability. (FN2-Section 5.0 Conclusions and Recommendations of the FMDRAT Report, February 10, 2012.) The FMDRAT in the Report noted that prior to submitting the FMDRAT Report to the Standards Committee for acceptance, the FMWG was seeking industry's views on its findings and requested comments as to whether the conclusions and recommendations are agreed to or not. The PJM Power Providers Group ("P3") respectfully submits these comments and does not agree with the Report's conclusions regarding the impact of DR on reliability, nor does P3 agree with the Report recommendations. II. PJM Power Providers Group P3 is a nonprofit corporation dedicated to promoting policies that will allow the PJM Interconnection, LLC ("PJM") region to fulfill the promise of its competitive wholesale electricity markets. Combined, P3 members own over 87,000 megawatts of power generation, own over 51,000 miles of transmission lines, serve nearly 12.2 million customers and employ over 55,000 people in the PJM region. (FN3- The comments contained herein represent the position of P3 as an organization, but

Organization	Yes or No	Question 8 Comment
		not necessarily the views of any particular member with respect to any issue. For more information on P3, visit www.p3powergroup.com) III. Comments P3 appreciates the FMWG's extensive work and commitment to reviewing DR and its role in reliability. P3, however, disagrees with the conclusion that there are little or no reliability impacts caused by the failure of DR resources to perform and with the recommendations of the Report. Rather, P3 agrees with the statement of the Report's Minority Position that DR providers "should bear the same obligations as their generation counterparts and hence should have a comparable set of reliability standards imposed on the DR Owners and Operators." (FN4 - Section 4.0 Minority Position of the FMDRAT Report, February 10, 2012.) While it is debatable whether DR should be relied upon for system security, the reality of the PJM market is that PJM does rely on DR for grid management and treats it as a reliability resource. Given this fact, the NERC report is contrary to the realities in PJM and other organized markets. Although, as P3 continues to maintain, DR is not a comparable capacity resource with generation, since DR however now makes up a significant amount in the capacity market, if DR does not show up as committed, there is a reliability problem in PJM. DR has grown to be a substantial capacity resource in PJM and rules have needed to be changed to prevent an over reliance on DR to the detriment of reliability. Over 14,000 MWs of DR capacity cleared the 2011 Base Residual Auction ("BRA") which procured capacity for the 2014/15 Delivery Year. (FN5- See PJM 2014/2015 RPM Base Residual Auction Results at http://www.pjm.com/markets-and-operations/rpm/~/media/markets-ops/rpm/rpm-auction-info/20110513-2014-15-base-residual-auction-report.ashx p.6.)

Organization	Yes or No	Question 8 Comment
		The BRA is the mechanism used by PJM to obtain the supply resources that it needs to maintain the required level of system reliability. This represented approximately a 50 percent increase in the amount of DR that cleared in the 2010 BRA. (FN6-See id at pgs.4 and 6.) Furthermore, considering the 2011 BRA cleared a total of 149,974.7 MWs, (FN7-See id at p.12.) **[Response: As P3 explains it, the BRA is a market mechanism to incent capacity, thus it is not a reliability issue; it is a market issue. If PJM is incenting the wrong resources then PJM should revise its market rules. The industry should not be required to adjust to PJM's Market approaches.]** DR makes up nearly 10% of the total capacity resources committed to PJM for 2014/15. Also noteworthy is that studies performed by PJM suggest that, on a probabilistic basis, at a 10% DR penetration level there would be a 20% probability DR could be called more than 10 times per year. (FN8- PJM Interconnection, L.L.C., Docket No. ER11-2288-000 (December 2, 2010), DR Product Reform Transmittal Letter: p8, figure 3. http://www2.pjm.com/~/media/documents/ferc/2010-filings/20101202-er11-2288-000.ashx.) **[Response: The FMDRAT does not dispute the P3 studies but as P3 states, these are probabilistic studies and not real impacts. The FMDRAT report is focused on the fact that TODAY this category is not a problem on the power system, but rather it is a positive force for reliability.]** P3 submits that given the expectation that DR will be called to this extent, it is certainly incorrect to conclude that DR does not materially impact reliability, or to come to the conclusions, as the Report does, that the failure of DR resources to perform as agreed to or as requested causes little or no reliability impact. Equally important is the fact that

Organization	Yes or No	Question 8 Comment
		many DR systems rely on mechanical and communication systems that are owned by a wide variety of entities. For example, many behind-the-meter ("BTM") generators are started and operated to provide the DR that is counted on by PJM. Because these BTM generators are under the control of a variety of entities with a range of managerial and financial wherewithal, it is imperative that these supply resources be required to maintain and test their capabilities periodically to provide a level of assurance that the DR will operate as planned when it is called upon. Historically, DR comprised only a small percentage of the total capacity resources committed to PJM. However, times have changed. As the current data reveals, PJM now relies on DR to be there when it commits to be, and is needed for peak load. **[Response: This is a market issue and not a reliability issue. PJM is stating that having to enforce its market rules more than 10 times per year is proof that the power system is at risk. These resources are paid to come off. There is no firm load being shed. If this load is considered as firm load then the question of how to consider DR changes significantly.]** The Report is simply incorrect in its conclusions and recommendations. The recommendations of the Report will result in adverse impacts on the BES, and do not amount to a practical or real understanding of how DR operates within the PJM market today. **[Response: PJM's innovations are an Industry Best Practice. It must be noted that PJM has not been found non-compliant with reliability standards because of its Market approaches.]** IV. Conclusion Based upon the above-stated comments, P3 respectively urges the Functional Model Working Group not to finalize the Report in its current form as it does not reflect the material role that DR plays in maintaining reliability in PJM and other RTOs. Instead, the working group should develop meaningful reliability

Organization	Yes or No	Question 8 Comment
		criteria that hold DR providers to the same level of accountability as generators. Respectfully submitted, PJM POWER PROVIDERS GROUP By: /s/ *Glen Thomas* Glen Thomas GT POWER GROUP1060 First Avenue, Suite 400King of Prussia, PA 19406 On behalf of PJM Power Providers Group Dated: March 14, 2012
Response: Please see in-line responses.		
Southwest Power Pool Regional Entity	No	
Electric Power Supply Association		EPSA (Footnote 1) appreciates the opportunity to comment on the Functional Model Demand Response Advisory Team's ("FMDRAT") "Report on Assessing the Need for Introducing Demand Response ("DR") Functions and Entities to the NERC Reliability Functional Model." With demand response increasingly participating as a resource on the electric system, accurately assessing the extent of its role as a reliability resource and any related or necessary NERC registration is timely and necessary. While EPSA can support certain of the FMDRAT report's findings that generating resources and DR resources do not contribute equally to grid reliability for the Bulk Electric System ("BES"), it may be too far a reach to recommend that there be no reliability registration, standards or requirements for DR resources. What the FMDRAT report highlights is increasing concern with mixed messages as to the role that DR plays on the BES and therefore how it should be treated. For instance, the DR Function Report's conclusions are not supported and are in fact repudiated by recent actions and rule implementation by the Federal Energy Regulatory Commission ("FERC" or the "Commission"), in particular issuance of Order No. 745 last year. (Footnote 2) Additionally, DR resources' increased participation as a capacity resource in the organized markets indicates an important role for reliability and assurance of resource adequacy. (Footnote 3)

Organization	Yes or No	Question 8 Comment
		Therefore, DR is currently being integrated in to the marketplace in a manner that reflects some reliability functions. While EPSA does not believe that DR resources are equal or comparable to generation for reliability, they are increasingly being assumed to function as a network participant as a matter of public policy (whether EPSA agrees or not) and therefore should be accountable for standards, requirements and obligations commensurate with that participation. This view of DR is supported by the statements of DR providers before regulatory venues other than NERC, and at odds with the recommendations of the FMDRAT, as is discussed below. Conflicting assessments of DR's role as a BES resource warrant consideration and analysis by NERC. It's troubling that DR is to be compensated to reflect comparability with generation by rate regulators (i.e., FERC), but then not responsible for comparable reliability obligations for reliability. Further, environmental regulators (i.e., Environmental Protection Agency) are told that because DR based on behind the meter generation is critical during emergencies, it requires loosened environmental restrictions in order to be available as a system emergency unit. These conflicts need to be addressed if greater DR is desired and artificially stimulated by policymakers and therefore would and does represent a network participant on the BES. If the FMDRAT's assessment is correct as to DR's role on the system, then FERC and the Environmental Protection Agency ("EPA") must make concomitant changes in their regulatory treatment of DR. If this does not occur, then it may be incumbent on NERC and the FMDRAT to reassess their findings and therefore conclusions and recommendations here. Based on the implementation of Order No. 745 at FERC, notwithstanding multiple appeals currently pending before the D.C. Circuit, the Commission has determined that "account[ing] for the practical realities of how those markets operate," (Footnote 4) generation and demand resources "[b]oth can have the same effect of balancing supply and demand at the margin either by increasing supply or by decreasing demand." (Footnote 5) Based on that finding, the Commission requires comparable compensation of

Organization	Yes or No	Question 8 Comment
		the Locational Marginal Price ("LMP") for DR resources, which some argue is, in fact, an overpayment due to the inclusion of the foregone retail rate, but, for purposes of the Commission at least at present, represents comparable compensation for a demand side resource which offers similar service to a supply side resource. The premise - refuted by EPSA in comments submitted to FERC during the development of Order No. 745(Footnote 6) - is that DR fills a role in the wholesale bulk power grid which is equal to generation's role in maintaining reliability because it can balance supply and demand. (Footnote 7)This finding, which must be significant as it underpins a required compensation level in every organized wholesale electricity market across the country until the courts rule otherwise, seemingly supports NERC's recognition that achieving the balance of supply and demand is key to reliability: Maintaining the reliability of the North American bulk electric system depends on the complicated and technically sophisticated activities of balancing electricity supply and demand and managing the flow of electricity throughout North America's interconnected networks. These activities require close cooperation among and adherence to minimum standards by all network participants. (Footnote 8)NERC in its Long-Term Reliability Assessment ("LTRA") has also noted the importance of DR contribution as a grid network participant especially in light of the ongoing growth of DR dependence, primarily in organized markets. The LTRA mentions how DR can make up for supply shortfalls as well as asserting that DR is key to coordinating and planning for system reliability. From the LTRA: The ability to implement Energy Efficiency programs in a relatively short time period provides the industry with another short-term solution to address any anticipated near-term capacity short-falls. Successful integration of Energy Efficiency into resource planning requires close coordination between those responsible for Energy Efficiency and those in bulk system planning to ensure appropriate capacity values are estimated while meeting reliability objectives. (Footnote 9) EPSA highlights that a megawatt of generation can offer attendant services and capabilities that a megawatt of Demand Response cannot, and therefore it is possible that the FMDRAT has found correctly that DR is not as operationally critical or necessary for reliability as generation. **[Response: The FMDRAT did not assert about the necessity of any resource. The report**

Organization	Yes or No	Question 8 Comment
		was strictly an analysis of the current state of affairs, and the need or lack of need for a DR functional entity to address new or unique reliability concerns currently not being addressed by any of the already defined functions and functional entities.] This raises concerns, however, surrounding recent findings from FERC as discussed above, as well as possible inconsistencies with certain NERC requirements and findings that DR providers are network participants key to maintaining system reliability. Additionally, and importantly, DR providers themselves have made claims before both FERC and the Environmental Protection Agency ("EPA") which are at odds with the findings of the FMDRAT, and therefore raise serious confusion as to their BES role in light of these contrary messages. [Response: The FMDRAT's assessment was focused on the need for reliability standards and if the industry was currently suffering adverse consequences as a result of the lack of NERC standards on DR. This was not a report of what may happen in the future and did not contend it was the final word. The report does suggest that more discussion is needed if and when innovations and new issues may affect reliability or precipitate the need for standards governing the proper performance of DR.] These mixed messages from DR providers are outlined below, in responses enumerated based on the FMDRAT Report Review conclusions. The FMDRAT Report Review Conclusions Responding to System Changes The FMDRAT states that a sudden load increase and generator tripping, or DR's spontaneous performance or failure to perform as instructed, do not pose adverse reliability impacts on the BES, and therefore supports the recommendation that DR should not be registered for reliability compliance. This is based on the conclusion that DR is "not

Organization	Yes or No	Question 8 Comment
		an active facility or component like a generator." However, DR providers have asserted that DR is not only on par with generators' physical attributes and abilities to respond to grid management signals, but is indistinguishable from those of generators. [Response: The cited excerpt from the report pertains to the loss of single DR asset. To the knowledge of the FMDRAT, there is not one large single asset that has showed up as a cause for a DCS event. This is merely a statement about asset size. That is not to be confused with the magnitude of accumulated dispersed assets. If the size of a single DR operation should impose adverse reliability impact on the BES, the entity responsible for managing DR bids and programs should be responsible for imposing a size limit to the program and aggregation, not the DR bidders themselves. To the issue of an active participant is a matter of semantics. The generator must take active measures to stay on as a unit. DR is passive in the sense that unless there are other circumstances (such as the loss of transmission feeders) the load simply exists. This is not meant to be an existential debate about existence and activeness; it is just an expression for this discussion. Generators trip and we must respond. Load does not "trip." WalMart may lose customers but it doesn't trip by itself. That was all that was meant by active.] From Order No. 745: Viridity states that attempts to distinguish the physical characteristics of generation and demand response ignore bid-based security-constrained economic dispatch as the foundation for LMP and are based on the assumption that the value of load management on the grid is limited to periods when the system is stressed, i.e., traditional "super peak shaving." Viridity states that, while these arguments might have been valid 15 years ago, today competitive markets can offer proactively-managed load control and comparable and non-discriminatory treatment of load-based energy resources. (Footnote 10) Viridity as a DR provider explains that DR can respond comparably to any other resource under times when the bulk-power system is stressed. DR providers state that in times of system stress they indeed play a role in maintaining

Organization	Yes or No	Question 8 Comment
		system reliability. This assertion by DR providers has played a part in establishing the basis upon which FERC equates generation and DR resources to one another with respect to their contribution to reliability, and therefore compensation requirements. While NERC's purview does not extend to issues of compensation or contractual relationships, it is the physical participation in the BES upon which FERC's findings rely. Additionally, several DR providers have urged the Environmental Protection Agency ("EPA") to tailor its environmental regulations to allow DR resources to provide reliability for the BES. **[Response: Care must be taken when making environmental issues. Whether the DR provider was referencing relief from the EPA or was associated with DR itself are issues that are the reason the FMDRAT believes that more discussions must be carried out before creating a DR functional entity.]** A coalition of DR providers (Footnote 11) petitioned the agency regarding its Reconsideration of National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines rulemaking proceeding ("RICE NESHAPS"), (Footnote 12) stating that changes to the final rule must be considered because DR entities play a key role for transmission operators in times of electric system emergency conditions. The DR providers assert that DR is indeed needed to avoid adverse BES reliability impacts. They state, "Emergency engines participating in emergency DR programs provide a critical service in stabilizing the electric grid on the rare occasions when the grid is about to fail." (Footnote 13) Further, DR providers note that their operation is based on emergency operation, not driven by cost: "System Operators call emergency DR programs to EEA Alert 2 NERC standards when there is the real potential for blackouts due to insufficient energy supply...regardless of the cost of those resources..." (Footnote 14) Therefore they urge the EPA to extend the allowable hours that stationary internal combustion (RICE) units may operate as emergency units in order to participate in the BES to backup and ensure reliability. These arguments before the EPA raise yet another confounding wrinkle in how DR is to be treated, as DR in some instances is in fact a generation product participating on the system under the guise of a

Organization	Yes or No	Question 8 Comment
		decrease in load. Should, then, DR which is facilitated by additional generation be treated in a different fashion by NERC from DR that is not? EPSA and others, including a major organized market operator, (Footnote 15) believe that DR which is sourced by behind the meter generation should be treated as the resource that it is - generation. To date, FERC has dismissed calls to make such a distinction, but the arguments of DR providers before the EPA underscore that they may well be different resources in terms of their ability to ensure reliability on the system. EPSA argues that if this is the case, then the diesel fuel units are in fact generation and should be held to the same restrictions and requirements. Therefore, this may be an important aspect of DR participation that requires attention and analysis by the FMDRAT and NERC. **[Response: The issue for the FMDRAT is whether or not defining and creating a DR function and a DR functional entity makes sense today. Our contention – bolstered in part by these comments above – is that it is not needed today because of the various reasons presented in the report and that there can be a number of unintended consequences of just imposing standards on such an entity to govern commercial arrangements. The FMDRAT originally hoped that it would be as simple as changing GO to RO; but that was not the case. Simple answers did not seem to work. And again, we cite the issue of priority and immediacy – there is no event that suggests there is any adverse reliability impact for which there is no recourse.]** Long-term planning and Operational Planning In the LTRA, NERC asserts the importance of DR's contribution to reliability both from the planning and operational perspective. The LTRA also suggests that data from DR resources can be uncertain, especially for long-term planning purposes. Unlike traditional generating resources with many decades of historic data for analysis, the long-term projections of Demand Response resources involve greater forecasting uncertainty. For example, the New England and New York electricity markets integrate large Demand Response programs; however, the long-term availability of these resources remains

Organization	Yes or No	Question 8 Comment
		uncertain. While extremely valuable in planning and operations, less understood attributes of the resources, such as response fatigue or economic-base participation rates must be carefully monitored to assure they do not pose reliability issues in the future. In most cases, forecasting of Demand Response is not performed. (Footnote 16) The FMDRAT Report states that operating entities do not count on DR in their operational plans. The LTRA further asserts that system planners do not have credible information regarding the operational viability of their equipment. However, DR providers have suggested that transmission operators rely significantly on DR in times of emergency. To support this, EnerNOC pointed the EPA to state rules, regulations and resource adequacy planning to demonstrate their key role in upholding reliability. ....[T]he proposed rule would seriously threaten the viability of emergency demand response programs and limit grid operator options to avoid catastrophic losses of power on the electric grid and risk serious damage to electrical infrastructure. Numerous states have formally changed their definition of emergency or otherwise allow the use of emergency engines in emergency DR programs. (Footnote 17)If, as DR providers claim, states have and the EPA should alter environmental regulations and restrictions due to the critical nature of wholesale DR resources,(Footnote 18) the necessary connection is that such resources are critical and therefore should be deemed reliability resources with all attendant responsibilities and obligations. EnerNOC supports this assumption by explaining, "Emergency DR resources are utilized as an important last line of defense against brownouts and blackouts of our nation's electrical infrastructure." (Footnote 19) In the context of state actions relying on DR for reliability, the Maryland Public Service Commission ("PSC") recent experience should be highlighted. In response to warnings by PJM, the regional grid operator, that Maryland could possibly face electric capacity shortfalls as early as 2011-2012, the PSC determined that "the most appropriate and timely response" was to procure "insurance" in the form of customer provided demand response. (Footnote 20) Consequently, the PSC directed the state's electric utilities to procure DR commitments from Curtailment Service Providers ("CSPs") such as EnerNOC and several other DR providers. On February 29, 2012, the PSC issued an order approving a settlement agreement between EnerNOC and

Organization	Yes or No	Question 8 Comment
		three electric utilities revising the terms of its commitments, as it did not fulfill the 2011/2012 commitments and addressing prospective contractual terms.(Footnote 21) Other DR providers' performance is currently under review by the PSC in this proceeding. **[Response: The FMDRAT does not support or oppose any of the legal arguments cited. It is not and would not be appropriate for the FMDRAT to comment on such arguments.]** EPSA Conclusion While the FMDRAT correctly finds that DR is not an active facility or component like a generator, this does not necessarily lead to the conclusions or recommendations included in the DR Function Report. DR is operating increasingly as part of the BES as a matter of policy and there should be standards commensurate with that participation. Additionally, there are complications at play based on whether a DR resource is the product of a true reduction in load or facilitated by behind the meter generation (in which case it is a generation resource which should be bound by the same requirements that apply to other generation). Additionally, the FMDRAT findings cannot stand at NERC if they do not apply fundamentally across regulatory regimes such as FERC and EPA, which have oversight of and impact on the BES. Currently, there are inconsistent explanations of DR's role on the BES in different policy venues, and therefore inconsistent treatment and requirements. Such distinctions are not theoretical; if DR is a wholesale reliability resource as DR providers claim - either via the energy or capacity markets - then it must be held to the same requirements and obligations as generation resources, or in the least requirements commensurate with its participation. The statements by DR providers suggest that there are real reliability impacts if DR resources do not perform as requested. The FMDRAT report's conclusions do not reflect that view, which raises grave concerns about the role, responsibilities and obligations of DR providers in relation to their impact on the system and interaction with all BES resources.

Organization	Yes or No	Question 8 Comment
		FOOTNOTES:* [Footnote 1 - EPSA is the national trade association representing competitive power suppliers, including generators and marketers. Competitive suppliers, which, collectively, account for 40 percent of the installed generating capacity in the United States, provide reliable and competitively priced electricity from environmentally responsible facilities serving power markets. Each EPSA member typically operates in four or more NERC regions, and members represent over 700 registered entities in the NERC registry. EPSA seeks to bring the benefits of competition to all power customers. The comments contained in this filing represent the position of EPSA as an organization, but not necessarily the views of any particular member with respect to any issue.]* [Footnote 2 - Demand Response Compensation in Organized Wholesale Energy Markets, Order No. 745, FERC Stats. & Regs. 31,322, on reh'g and clarification, Order No. 745-A, 137 FERC 61, 215 (2011), reh'g denied, Order No. 745-B, 138 FERC 61,148 (2012). Petitions for review of Order Nos. 745 and 745-A, filed by numerous parties representing a cross-section of the electricity sector, are now pending before the U.S. Court of Appeals for the District of Columbia Circuit. See Electric Power Supply Association v. FERC, No. 11-1486 (petition for review filed on Dec. 23, 2011, consolidated with Nos. 11-1489, 12-1088, 12-1091 and 12-1093 by orders issued on Dec. 28, 2011, Feb. 13, 2012, and Feb. 15, 2012).]* [Footnote 3 - In PJM, DR represents 10% of the total capacity resources committed for the 2014/2015 delivery period based on the 2011 Base Residual Auction results for the Reliability Pricing Model forward capacity market ("RPM"). See PJM 2014/2015 RPM Base Residual Auction Results at http://www.pjm.com/markets-and-operations/rpm/~/media/markets-ops/rpm/rpm-auction-info/20110513-2014-15-base-residual-auction-report.ashx, p. 12.]* [Footnote 4 - - Order No. 745, para 46.]*

Organization	Yes or No	Question 8 Comment
		[Footnote 5 - Order No. 745, para 49.] * [Footnote 6 - Request for Rehearing of the Competitive Supplier Associations, Docket No. RM10-17-001 (filed Apr. 14, 2011), Elec. Power Supply Ass'n v. FERC, Petition for Review, Case No. 11-1489.] * [Footnote 7 - "....demand response has the potential to support system reliability and address resource adequacy and resource management challenges surrounding the unexpected loss of generation. This is because demand response resources can provide quick balancing of the electricity grid. The Commission finds that in the organized wholesale energy markets demand response can balance supply and demand as can generation." Order No. 745, para 10.] * [Footnote 8 - http://www.nerc.com/docs/docs/blackout/NERC_recommendation_12-technical_edits.pdf.]* [Footnote 9 - http://www.nerc.com/files/2011%20LTRA_Final.pdf, page 15.]* [Footnote 10 - Order No. 745, para 20.]* [Footnote 11 - "Petition for Reconsideration of National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines, Final Rule," filed by CPower, Inc., EnergyConnect, Inc., EnerNOC, Inc., and Innoventive Power, LLC on May 27, 2010, RIN 2060-AP36, EPA Docket No. OAR-2008-0708, page 2. ("DR Providers Petition")]* [Footnote 12 - "Comments on Proposed Settlement Agreement," filed by the Electric Power Supply Association ("EPSA"), the Electric Power Generation Association ("EPGA"), the Independent Power Producers of New York, Inc. ("IPPNY") and the New England Power Generators Association ("NEPGA") on February 3, 2012, EPA Docket No. HQ-OGC-

Organization	Yes or No	Question 8 Comment
		2011-1030.]* [Footnote 13 - DR Providers Petition, page 2.]* [Footnote 14 - Id, page 7.]* [Footnote 15 - "DRR that is Behind the Meter Generation ("BTMG") will not be paid the full LMP, in part, because BTMG is not a demand response reduction in energy, pursuant to Order No. 745, but rather is an incremental increase in Energy behind the meters." Midwest Independent Transmission System Operator, Inc., Order No. 745 Compliance Filing, Docket No ER11-4337-000 (filed Aug. 19, 2011), Transmittal letter page 5, fn 16.]* [Footnote 16 - NERC 2009 Long-Term Reliability Assessment 2009-2018, p. 19. Available here: http://www.nerc.com/files/2009_LTRA.pdf. The Report also notes that going forward, "To monitor historical performance of Demand Response, NERC, in coordination with the North American Energy Standards Board (NAESB), is developing the Demand response Availability Data System (DADS) to assess the capability and availability of Demand Response." page 20.] * [Footnote 17 - EnerNOC, Inc. Comments to the EPA on NESHAP RICE proposed rule) published in the Federal Register March 5, 2009; Vol. 74, No. 42), Docket ID No. EPA-HQ-OAR-2008-0708, page 3. ("EnerNOC EPA Comments")]* [Footnote 18 - As these state and environmental reliability qualifications appear to be available as part of state resource adequacy plans, and are not confidential as part of commercial agreements, EPSA believes that full consideration of all available resources would add value to the FMDRAT Report.]* [Footnote 19 - EnerNOC EPA comments, page 1.]*

Organization	Yes or No	Question 8 Comment
		[Footnote 20 - Order No. 84715, In the Matter of the Investigation Of the Process and Criteria For Use in the Development of Request for Proposal by the Maryland Investor-Owned Utilities for New Generation to Alleviate Potential Short-term Reliability Problems in the State of Maryland, Case No. 9149 (issued February 28, 2012) (approving Settlement Agreement between EnerNOC, Delmarva Power and Light, Potomac Electric Power Company, Potomac Edison, PSC Staff, and the Office of People's Counsel).]* [Footnote 21 - Id. at pages 18-20.]
Response: Please see in-line responses.		
LG&E and KU Services	Yes	There has been a lack of transparency by the Functional Model Demand Response Advisory Team (FMDRAT) during the final stages of development of this report. It is not clear why the team decided to include a distinct minority position within this report.
Response: The FMDRAT believes that inclusion of the minority position is part of being transparent. The FMDRAT has no agenda and believes that all positions expressed should be provided to the readers of its report.		
NRG Energy, Inc. ("NRG")	Yes	NRG Energy, Inc. ("NRG") appreciates the opportunity to comment on the Functional Model Demand Response Advisory Team's February 10, 2012 Report on Assessing the Need for Introducing Demand Response Functions and Entities to the NERC Reliability Functional Model ("Report"). NRG disagrees with the FMDRAT's majority's refusal to include demand response resources ("DR") in the Functional Model and the majority's finding that DR's "failure to perform as instructed does not pose adverse reliability impacts on the BES for which there is no recourse" (Report at Exe. Summary (1)). The Report curiously concludes that because DR is usually arranged through commercial arrangements or contractual agreements and penalties are levied if these obligations are not met, reliability standards are not needed to force DR's compliance with its commercial agreements (Report at 3.4). However, this conclusion fails to recognize that generation is

Organization	Yes or No	Question 8 Comment
		subjected to the same financial penalties should it not fulfill its commercial and/or contractual arrangements. If because of the penalties, reliability standards are not necessary to achieve the desired DR performance, reliability standards are also not necessary to force generations' compliance with commercial and contractual obligations. **[Response: DR in its current state of growth presents itself in many forms. The FMDRAT's approach was to distill the many varied approaches into their fundamental constituent parts. The following answer does not apply to every type of DR but it applies to a significant portion of the capacity being cited. Much of "today's" DR growth is coming from third party entities virtually bundling many small entities (*e.g.,* WalMart stores). The DR asset would be the WalMart not the third-party. A DR functional entity on DR assets would logically fall on the WalMarts not the third party organizers. Cyber and Physical standards would fall on WalMart because they have the relays and switches in their stores. If not properly considered, this would hurt DR expansion.** **Generating assets are designed to work in the energy sector and WalMarts are designed to sell merchandise. The FMDRAT sees a significant difference even though as NRG points out, it is the WalMart that is providing the end service. The FMDRAT is not commenting on other functional entities and whether or not the current requirements are appropriate or not, the FMDRAT's focus is only on DR. Because one functional entity has an obligation should not determine whether that requirement should apply to another functional entity.** **To respond to the FMDRAT's reference to penalties, those third party organizers are creating contractual arrangements to pay for a service and those contracts generally include performance metrics and non-contract performance clauses. To date, these contractual arrangements have served the purpose of the commercial entities as well as the reliability entities. NERC standards only apply to NERC Registered entities and do not apply to Market participants (unless the participant is registered as one or more NERC Functional Entities).]**

Organization	Yes or No	Question 8 Comment
		DR represents a growing portion of the electric system and the various RTOs and ISOs rely on DR in increasing amounts and capacities. System operators must have assurance that they can rely on DR and financial penalties are simply insufficient to provide such assurance. Further, to the extent DR participates in the same capacity and ancillary services markets as generation, DR should be subject to the same requirements, including reliability standards and, where applicable, availability standards. **[Response: The FMDRAT agrees with NRG that DR is growing and that operators need confidence that the service will be provided. The ISO/RTO Markets are providing the breeding ground for DR and are serving their own operations without the need of mandatory NERC standards. The FMDRAT believes that paradigm is functioning well without intervention of standards. The FMDRAT does not believe that the lack of a DR Functional Entity in any way hinders the growth that has been achieved. The FMDRAT does point to the distinct possibility that a premature set of standards designed for an immature defined entity will hinder that growth.]** *3 NRG recognizes the increasing role of DR and that the various regions are relying more heavily on demand resources to meet their reliability needs. For example, FERC's 2011 Assessment of DR & Advanced Metering recognized that the contribution of DR in RTOs and ISOs increased by more than 16 percent from 2009 to 2010 and overall represented 7.0% of the 2010 Peak Demand market: *4 ISO/RTO MWs Percent of 2010 Peak Demand CAISO 2,135 4.5% ERCOT 1,484 2.3% ISO NE 2,116 7.8% MISO 8,663 8.0% NYISO 2,498 7.5% PJM 13,306 10.5%

Organization	Yes or No	Question 8 Comment
		SPP 1,500 3.3% Total 31,702 7.0% Contrary to the FMDRAT majority's view that DR poses no impacts to reliability, the use of DR for reliability is contemplated in NERC's own definition of DR and its existing standards. In fact, the Report itself defines DR as "a temporary change in electricity usage by a Demand Resource in response to market or reliability conditions" (Report at 3.1). Likewise, the NYISO explicitly recognizes DR as a "reliability program." **[Response: The FMDRAT team position is not that DR is insignificant, the FMDRAT position is that the Market rules are serving the needs of reliability as proven by the fact that there is no quantified evidence of DR caused reliability problems. The FMDRAT is not debating titles of programs; it is merely examining current field conditions. A referenced program is not proof that there is a reliability issue. Indeed, the Market rules as noted above are designed specifically to serve reliability needs.]** . *6 Additionally, NERC's EOP-001 standard includes both the implementation of load management and the use of interruptible and curtailment customer load to reduce capacity requirements as elements for the development of emergency plans. Additionally, both NERC's ACE and BAL standards contemplate the use of DR to maintain reliability. As the various RTOs/ISOs and FERC have recognized, DR indeed provides reliability benefits. "Economic and Capacity-based demand response clearly provides benefits to regional grid operation and the wholesale market operation. . . . These demand resources provide benefits by providing valuable alternatives to PJM in maintaining operational reliability and in promoting efficient market operations." *7 FERC itself recognized that "demand response has the potential to support system reliability and address resource adequacy

Organization	Yes or No	Question 8 Comment
		[*8] and resource management challenges surrounding the unexpected loss of generation. This is because demand response resources can provide quick balancing of the electricity grid. [*9]" (Order No. 745 at P 10). The various regions include explicit operational language including the activation of DR as a method to return operating systems to normal state. For example, o NYISO lists the activation of Special Case Resources and Emergency Demand Response Programs as possible remedial actions to be implemented in response to an alert state, major emergency or operating reserve deficiency or shortage; *10 o PJM explicitly includes demand resources as load management products and the emergency operations manual states that in response to a load reduction action issued in an emergency situation, demand resources are to reduce load; *11 and o ERCOT relies on DR to maintain system frequency and meet total system capacity, primarily through Load Resources providing responsive reserves and emergency reserve service. Both of these programs have measurement and verification to determine the availability and responsiveness of the reserves. Load Resources providing frequency response with an under frequency relay are an essential tool for grid security in ERCOT. These loads trip instantaneously when frequency dips below their set point. It is simply inaccurate to suggest the DR resources are not needed for reliability. The ISOs are counting on DR to perform when called upon and as such, DR must be subject to the same reliability standards as generation, otherwise reliability is compromised. DR is counted for reliability planning by regional entities and those entities should be able to rely on DR, the same as generation. In its 2010 Annual Report, PJM noted that it was enhancing opportunities for DR to help the system meet future reliability requirements and reported several instances in 2010 when demand resources helped "keep the system sound." *12 FERC Staff itself recognized DR's "significant contributions to balancing supply and

Organization	Yes or No	Question 8 Comment
		demand during system emergencies for several RTOs and ISOs in 2011": *13 - For example, very hot weather during July 2011 in the Eastern U.S. caused demand for electricity to approach record-setting levels. On July 21, the New York Independent System Operator (New York ISO) activated all of its registered demand response in the downstate region (more than 800 MW), and activated more than 2,000 MW of demand resources statewide the following day. - In the PJM Interconnection, L.L.C. (PJM) region, economic (non-emergency) demand response reached a peak reduction of 105 MW in reaction to high prices on July 21. On July 22, PJM activated demand resources in six Mid Atlantic zones, resulting in about 2,400 MW of peak reduction, mostly from emergency demand resources. ISO New England called for 643 MW of demand response on July 22, and estimated that about 663 MW of peak reduction resulted. Extended hot weather and high demand led the Electric Reliability Council of Texas (ERCOT) to activate approximately 1,500 MW of load resources and interruptible resources during a level 2 emergency on August 4, 2011. ERCOT invoked another level 2 emergency on August 24, 2011 and deployed interruptible loads. - ERCOT also called on demand response resources in response to severe cold weather during February 2-3, 2011. A significant number of electric generating facilities in the U.S. Southwest tripped off line, failed to start, or had their available capacity de-rated during the extreme cold weather. On February 2, 2011, a cumulative total of 14,702 MW of generation capacity was unavailable in the ERCOT region. The grid operator responded by dispatching demand response, shedding loads and appealing for voluntary energy conservation by the public. - On February 2 more than 1,000 MW of non-controllable load resources responded to the Texas emergency. About 886 MW of load resources responded within 10 minutes of ERCOT's call. Within the next thirty minutes a scheduling entity contacted ERCOT and shed an additional 140 MW load that was not previously committed. Several demand response providers reduced more load than was committed. - ERCOT also deployed all of its Emergency Interruptible Load Service (EILS), during the February 2-3, 2011 weather event. ERCOT normally procures EILS three times during the year, but decided to obtain supplemental EILS capacity via a one-time April-May solicitation to ensure the availability of demand response resources for the

Organization	Yes or No	Question 8 Comment
		remainder of the year. The various regions rely on DR to maintain their systems and DR should be subject to NERC's reliability standards to assure system operators that using DR will provide reliability. Contrary to the majority's view, mere financial penalties are insufficient to deter DR non-compliance. Additionally, the ISOs and RTOs do not only rely on DR in specific emergency events, but also forgo purchasing other resources in their reliance on DR. For example in PJM's efforts to revise its tariff to compensate DR based not on the resources' likely energy consumption levels during the relevant hour, but on their Peak Load Contribution, i.e., the measure relied upon by PJM to plan for capacity, the Commission noted PJM assertions that "a Capacity DR resource, as opposed to any other load consuming entity, has made a commitment in the RPM auction to met the system reliability requirement, and PJM, in reliance on that commitment, has foregone purchasing other resources." *14 In PJM, as in other regions, DR is participating as an ancillary service that is both compensated and counted on for reliability and is not merely a passive resource. As such, NERC must maintain equivalent and stringent standards in ancillary services markets, regardless of the type of resource (whether DR or generation) providing the service. Further, the various regions are undertaking efforts to even further integrate DR into their markets. ISO-NE and its stakeholders are engaged in modifying their energy and capacity markets to fully integrate demand resources, in compliance with FERC Order No. 745. In so doing, ISO-NE has recognized that "[t]he . . . process for complying with Order No. 745 entails the implementation of rules that will fully integrate demand resources into the energy market. The fully integrated rules are scheduled to become effective as of June 1, 2016." *15 DR is participating on equal footing with generation in capacity and ancillary services markets, is being relied upon by various RTOs and ISOs for reliability planning and as such, should be required to meet comparable performance and reliability standards as generation. The Report distinguishes DR from generation because DR is not an "active facility" (Report at Executive Summary (1)) and, unlike generation, it does not expand the

Organization	Yes or No	Question 8 Comment
		capability of the BES to serve more load (Report at 4). However, DR does just that - it in effect expands the capability of the electric system by allowing demand and supply to be balanced at the margin. In allowing demand response to bid into organized wholesale energy markets, FERC found that such action "expands the amount of resources available to the market, increases competition, helps reduce prices to consumers and enhances reliability." *16 In many markets the objective is to have active DR respond to dispatch signals just as generators do today. In ISO-NE for example, the current system has a specific amount of dispatchability for DR and through the stakeholder process, ISO-NE is working to have all active DR respond to dispatch signals. Because DR expands the ability of the electric system and actively participates in capacity and ancillary services markets, it is discriminatory to compensate DR for its participation in these markets, but not to hold DR to the same standards as other market participants. Thus, considering that through the various regions efforts to comply with Order 745, the regions are working to hold DR to even more of the same standards as generation, DR must be subject to the same reliability standards as generation. In sum, DR is receiving compensation to perform when needed, the ISOs depend on DR to perform when called upon and as such, DR must be subject to the same reliability standards as generation, otherwise reliability is compromised. In the event the majority rejects these arguments and maintains that the reliability standards should not apply to DR, as the minority suggests, the reliability standards should also not apply to generation (since like DR, generation is subjected to financial penalties should it fail to comply with its commercial and contractual obligations) and the list of NERC Reliability Standards set forth in Appendix B should be removed. **[The FMDRAT suggests that NRG and the report are in agreement on the facts but that they are "talking past one another" regarding what is being said.** **The FMDRAT views the NRG facts as proof positive that Market rules are working today and those market rules are successfully serving the reliability needs of the industry.**

Organization	Yes or No	Question 8 Comment
		There is no dispute of the value of the many DR initiatives that are being put into action. **The FMDRAT does not, however, see a common characteristic flowing through all of the many initiatives, a characteristic that needs standardization, or more over a characteristic that needs to be corrected.** **The FMDRAT views the Market place as a success in encouraging new innovations and services designed around the capabilities of the assets being made available. Moreover, the Market place has successfully designed their programs to meet (and exceed) the performance standards mandated by NERC. That being said, the standardization of a given type of solution (*i.e.,* the creation of a standard model DR Functional Entity) will place those Market rules at odds with one another.** **There are those commercial entities that would like to exchange a single common product across all areas of North America. The FMDRAT has no issue with that concept, but does believe that creating that standard product for all DR entities has a greater potential to be a barrier to expansion and innovation then it does to be a driver for DR. The FMDRAT does favor a laissez faire approach – at least for now – based on the fact that expansion is continuing and that there is no driving reliability problem.** **ENDNOTES FOR QUESTION 8** *3 - See, e.g., California Independent System Operator Corporation, 127 FERC Â¶ 61,298 at PP 58-59 (2009) (granting demand response a temporary exemption from the California ISO's standard resource adequacy capacity product availability standards, but directing the CAISO to work to end that exemption in a timely manner.) *4 - Federal Energy Regulatory Commission: Assessment of Demand Response & Advanced Metering 2011 Staff Report at 10 (Published Nov. 2011) ("FERC DR Report") available at http://www.ferc.gov/legal/staff-reports/11-07-11-demand-response.pdf.

Organization	Yes or No	Question 8 Comment
		*5 - Report at 3.1 (“A DR asset or aggregator that functions according to operating conditions as defined by prior agreements poses no impact to reliability because its impacts are analyzed and assess in the Operating Plans of the respective Transmission Operator (TOP) and Balancing Authority (BA).”). *6 - Errata to Annual Report, “NYISO Annual Report on Demand Response Programs,” FERC Docket No. ER01-3001-000 at 4, 9 (filed Jan. 25, 2012) (noting that DR resources in NYISO reliability programs represented 6.4% (2,167 MW) of the 2011 Summer Capability Period peak demand). *7 - Demand Response Compensation in Organized Wholesale Energy Markets, 134 FERC Â¶ 61,187 at n.117 (2011) (quoting Senior Vice President of PJM Andrew L. Ott) (“Order No. 745”). *8 - See ISO-RTO Council Report, Harnessing the Power of Demand How RTOs and ISOs Are Integrating Demand Response into Wholesale Electricity Markets at 4, found at http://www.isorto.org/atf/cf/%7B5B4E85C6-7EAC-40A0-8DC3-003829518EBD%7D/IRC_DR_Report_101607.pdf (“Demand response contributes to maintaining system reliability. Lower electric load when supply is especially tight reduces the likelihood of load shedding. Improvements in reliability mean that many circumstances that otherwise result in forced outages and rolling blackouts are averted, resulting in substantial financial savings . . . .”). *9 - For instance, in ERCOT, on February 26, 2008, through a combination of a sudden loss of thermal generation, drop in power supplied by wind generators, and a quicker-than-expected ramping up of demand, ERCOT found itself short of reserves. The system operator called on all demand response resources, and 1200 MW of Load acting as Resource (LaaRs) responded quickly, bringing ERCOT back into balance. OAK RIDGE NAT’L LAB., NAT’L RENEWABLE ENERGY LAB., TECH. REP. NREL/TP-500-43373, ERCOT EVENT ON FEB. 26, 2008: LESSONS LEARNED (JUL. 2008).

Organization	Yes or No	Question 8 Comment
		*10 - NYISO, Manual 15, Emergency Operations Manual at Â§Â§ 1.2.2, 2.3, 3.3.1 and 4.4 (November 2011) available at http://www.nyiso.com/public/webdocs/documents/manuals/operations/em_op_mnl.pdf *11- PJM Manual 18: PJM Capacity Market (Feb. 23, 2012); PJM Manual 13: Emergency Operations at Attachment G (Capacity Emergency Matrix) (Jan. 1, 2012). *12 - PJM 2010 Annual Report at 6, 11 available at http://pjm.com/about-pjm/who-we-are/~/media/about-pjm/newsroom/2010-annual-report.ashx (noting that "on July 7, for example, PJM asked consumers in the mid-Atlantic region to voluntarily conserve power and issued mandatory load management orders. In late September, the heavy summer loads continued; PJM requested load management in parts of the system on September 23 and 24."). *13 - FERC DR Report at 9-11 (citations omitted). *14 - PJM Interconnection, L.L.C., 137 FERC Â¶ 61,108 at P 26 (2011). *15 - ISO-NE and NEPOOL, Price Responsive Demand FCM Conforming Changes, Docket No. ER12-947 at 4 (Jan. 31, 2012). *16 - Order No. 719, FERC Stats. & Regs. Â¶ 31,281 at P 154 (2008).
Response: Please see in-line responses.		
Clallam County PUD No.1	No	
Xcel Energy	No	
Flathead Electric Cooperative, Inc.	Yes	I thank the team for coming to a reasonable real world conclusion on this one.

Organization	Yes or No	Question 8 Comment
Response: Thank you for the support.		
Independent Electricity System Operator	Yes	As indicated previously, we agree that reliability standards obligations are not the appropriate mechanism to enforce compliance with commercial or contractual obligations. We also agree with the recommendations and many of the conclusions of the FMDRAT's report. We want to comment on one of the arguments that leads to these outcomes, as highlighted below. We agree with the suggestion that reliability standards, especially if they are overwhelming, could discourage participation in DR programs, but this should not be a prime consideration on whether or not reliability standards are developed. The FMDRAT's report does not preclude the possibility of creating DR standards in the future if it is determined that DR programs impact reliability. It is reasonable to expect that any entity providing a service that impacts reliability of the BES be held accountable for that service and adhere to standards. Finally, materiality thresholds, or criteria for establishing these thresholds, which may vary by Region, Area or Balancing Authority, will be needed in order to establish applicability of any future reliability standards. Identifying when DR finally does have a significant reliability impact as well as the materiality threshold are issues that will require investigation at a future date.
Response: Thank you for the support. We will consider your suggestions if and when the FMWG revisits this subject again in the future.		
New York Independent System Operator	Yes	The New York ISO (NYISO) appreciates the opportunity to provide comments on the FMDRAT report. The NYISO participated in the development of this report and, with additional comments expressed above, supports its recommendations. This report covers an important issue on the expanding capabilities of demand response to supplement traditional generation and the potential impact that demand response can have on reliability. The NYISO believes that continued review is necessary to establish the levels at which demand response may need to become part of NERC's Functional Model, but it does not believe the addition of new Functional Entity for demand response is necessary at this time.

Organization	Yes or No	Question 8 Comment
Response: Thank you for the support.		
Lee County Electric Cooperative	No	
Westar Energy	No	
Manitoba Hydro	No	
Texas Reliability Entity	No	
Duke Energy		Duke Energy finds the Minority Opinion (Section 4) extraneous to the document and issue at hand. The inclusion of Appendix B seems especially irrelevant to this report. For these reasons Duke Energy refrains from commenting on the technical merits of this section.
Response: The section on minority opinion was included in the report to record some members' disagreement with the majority view of the FMDRAT. It also provides the audience the information that is not conveyed in the findings presented in the report so that the industry is aware of the different view.		
Hydro-Quebec TransEnergie	Yes	
Ingleside Cogeneration LP	Yes	The White Paper clearly states the predominate reason why we should approach the regulation of Demand Response with caution. Businesses who participate in a load-reduction contract or in responsive reserve markets are economically incented to do so. If they determine that the incremental expense required to comply with NERC's reliability requirements is too great, they may decide to cease participation in responsive reserve markets and individual contractual arrangements altogether. Since DR resources provide system reserves with no fossil fuel emissions (unlike generation), they provide additional benefits through energy and environmental conservation. Clearly, we do not want to be perceived as impeding progress on these important initiatives. Adding to our unease is the fact that there is no data demonstrating the reliability benefit gained by oversight of Demand Response resources. Secondly, we agree with the FMDRAT's assessments of the Minority Opinion. As stated in the report, generators are a fundamental part of the integrated power system providing

Organization	Yes or No	Question 8 Comment
		primary products for reliability. Demand Response enhances the capability of the system, primarily by providing an additional source of responsive reserves. However, the integrated system would be planned and operated at an Adequate Level of Reliability without these Demand Response resources (because they would revert to being only a part of the demand). Hence, there is no substantive reason for including Demand Response in the Functional Model.
Response: Thank you for the support.		
Salt River Project	No	
National Rural Electric Cooperative Association (NRECA)	No	
Nebraska Public Power District	No	
Public Service Enterprise Group	No	
ISO-NE	Yes	The Team should continue to meet, because as DR becomes more prevalent and provides services on a comparable basis as other resources (e.g., generation capacity), the question of establishing DR in the Functional Model needs to continue to be considered.
Response: Thank you for the suggestion. The need for the FMDRAT to continue to meet will be decided by the FMWG.		
Kansas City Power & Light	No	
ERCOT ISO		
Constellation Energy Commodities Group	Yes	We appreciate the efforts of the Advisory Team in developing this report. The team delves into a number of the aspects unique to demand response (DR). We agree that the facts and analysis to date do not present reliability concerns that warrant including DR in the functional model. It is critical that the NERC perspective on DR focus on reliability. A number of DR aspects concern market mechanisms and economic products that are important to understanding DR, but not necessarily relevant to its role in reliability.

Organization	Yes or No	Question 8 Comment
		Varying types of DR products and services, variations in markets across regions, as well as the similarities and differences between DR and generation all warrant careful consideration before deciding whether action is needed. Until there is a substantiated reliability issue before NERC and stakeholders, DR should not be added to the functional model. While this report begins to look at the reliability aspects of DR, to further clarify the role of DR in reliability the team should further vet a number of other issues. We believe that a greater understanding of the aspects below will strengthen the conclusions of the FMDRAT report, improve the understanding of DR and its role relative to reliability and clarify the boundary between reliability and market mechanisms. Identified below are issues and questions to consider: o Because DR assists in reducing load, in the event of an SOL or IROL exceedance, DR could be used to bring the system back within its operating limits. The Report should explain why the use of DR is different from the use of load shedding to address SOL or IROL exceedances, to illustrate that DR need not be brought within the scope of the Reliability Standards. **[Response: The current standard mandates that TOPs stay within limits. The requirement does not mandate how the TOP stays within those limits. When resolving a flow limit the TOP must raise supply/lower load on one side of the limit and lower supply/raise load on the other side of the limit. A generator can do both while in general DR can only reduce load (that does not in any way imply that DR can find innovations that will also address that aspect). Technically, there is no difference between raising supply and lowering load. But, if DR is affecting that service with innovative processes or the Markets are creative in how to maximize the use of DR, the FMDRAT is suggesting that creating prescriptive standards are not needed if the processes are working. The anticipation of "potential" problems is not a necessary reason the overhead associated with the standards may be a deterrent to future progress.]**

Organization	Yes or No	Question 8 Comment
		o The Report addresses normal operational circumstances, explaining that "in operational planning, there are no known entities that count on DR as a critical component of their operational plans." This should also address planning for emergency circumstances to demonstrate that DR would not have an important reliability role in responding to system emergencies. For example, the Report should explain why a DR provider would not need to be one of the entities bound to comply with Reliability Coordinator, Transmission Operator, or Balancing Authority directives during a system emergency in the same manner as Load-Serving Entities, Distribution Providers, Generator Operators and the like. **[Response: The word usage in "to count on" may be too relative. There is no question that entities are using DR and in that sense of the word those entities "count on" DR. The intent of the phrase in the report was to indicate that the failure of a DR asset (think WalMart) does not impose a prohibitive barrier to an entity meeting a NERC standard. In that sense, the entity is not "counting on" DR as its sole means of complying with a standard. The report was not written to the extent that every word is to be examined literally. The report was meant to be a Progress Report and its ideas are to be taken "literally".** **The question raised, however, is why shouldn't DR be an applicable entity? The response is which DR aspect is to be included? The aggregator whose process is making the WalMart a viable energy service? The Market whose rules govern, monitor and compensate for the service? These questions beg to be answered – but the FMDRAT believes that simply saying that DR is an applicable entity does not address those issues; and without addressing those issues the industry may get actions that no one wants (*i.e.,* a great clear mandatory standard that the free market avoids by not participating)]** o The Report explains that the contractual obligations of DRs are sufficient to drive the appropriate behavior, stating that "having commercial arrangements and compensation/penalty mechanisms in place to govern their contractual obligations would

Organization	Yes or No	Question 8 Comment
		suffice to drive DR to achieve the desired behavior." The Report should also address situations where DR could be operationally useful but is, for some reason, contractually unavailable. As written, the Report suggests that there are no circumstances in which a system operator would need to call upon DR when DR would be unavailable. Are those circumstances unlikely to exist given the contracts under which DR operates? Or does load-shedding and generator dispatch provide faster relief such that incorporating DR within the NERC Functional Model would provide no reliability purpose because DR would not be used by system operators in responding to reliability concerns? **[Response: The report is not meant to say that DR is never "unavailable" – that is simply incorrect. The FMDRAT never meant to imply that DR is always there. What the FMDRAT did want to say is that DR is never the "only" option that an operator would have to comply with NERC's standards. At least, the FMDRAT is not aware of such a situation.** **The FMDRAT would note that there are assets today that can provide faster services than conventional assets are mandated to provide today. Markets are looking into using that added speed to more efficiently comply with NERC standards. But, from a high level Functional Model perspective, the requirements and needs of the system stay the same; it is HOW the old and the new assets are combined and coordinated and paid for that is changing. The FMDRAT applauds those initiatives and believes that there is no immediate reason to standardize those products]** o The Report states that "all responsible entities have some measures in place to guard against the possibility that a DR resource does not fulfill its obligations to provide the agreed amount of reserves" and that "compared to sudden load increase and generator tripping, DR's spontaneous performance or failure to perform as instructed does not pose adverse reliability impacts on the BES for which there is no recourse." This should explain

Organization	Yes or No	Question 8 Comment
		how, under the existing Reliability Standards, responsible entities are already required to plan for the unavailability of DR. The current discussion does not reference the current planning Standards, but should do so to demonstrate that the measures in place to guard against improper DR action are already mandatory and do not, therefore, need to be addressed through new Standards or Requirements specific to DR. **[Response: Planning issue first: Constellation raises the thorniest issues discussed by the FMDRAT, which is how to handle DR in assessing the forecasted power system. The traditional assessments are predicated on construction of firm assets specifically designed for the electric power industry.** **A DR asset (WalMart) is designed to sell merchandise. A Market rule can contract such an asset to remain an energy service but it does that through incentives. Unlike generators and transformers WalMart may decide to "drop out" and to focus on its core product, "selling merchandise". So, does a NERC standard only "allow" what is a firm service commitment and ignore or reduce "bundled processes"? We have a fairly good idea of the WalMart future load, but do we build to that load, or do we build to the reduced load (Peak Load minus committed DR reduction? Is our commitment to serve load, and thus the use of DR processes, indicate that we are failing our commitment? This is an issue that deserves more extensive discussion within the industry and with regulators (state and federal)]** Measures: This statement is an Industry trusism in operations. The services that operators have available to them always include margins "to guard against the possibility that any given asset does not provide its agreed service. It seems that the commenter is asking a broader question "Is it the DRAT's opinion that today's reliability entities are prepared for the situation in which all DR were unavailable?" The DRAT is confident that the loss any one DR asset (WalMart) will is indeed covered simply because those assets are in generally within the noise bandwidth experienced on the operating system.

Organization	Yes or No	Question 8 Comment
		[Response: Asking what happens if all DR is unavailable is like asking what happens if all coal units are unavailable (*e.g.,* coal miners' strike), all nuclear units are unavailable (*e.g.,* NRC directive), all oil units are unavailable (*e.g.,* Oil embargo). All of these are possibilities (indeed all of these did occur) and the industry was and is prepared to operate reliability in those situations. Please note that does not mean that the system would operate identically as if those situations did not occur; but it does mean that the power system would be able to operate in a reliable fashion.] o The Report should be placed in the wider context of avoiding unnecessary regulatory burdens on DR. DR provides critical environmental and cost-savings benefits because it reduces the need for new generation capacity and helps avoid the use of high-emission, high-cost generation during peak load periods (e.g. peak-shaving). For these reasons, among others, the Commission is working to increase the use of DR across the United States. See, for example, the Commission's 2010 National Action Plan on Demand Response. Making DR a new NERC functional type and imposing Reliability Standards compliance obligations on DR providers could discourage the wider use of demand response and, as a result, prevent the country from achieving the environmental and cost-saving benefits DR can provide. **[The FMDRAT shares the same view that unnecessary regulatory burdens, such as reliability standards imposing on DR, should be avoided.]** o Also worth consideration is that, currently, much of DR operates at the distribution level and the majority of DR participants are connected below the threshold of the BES and thus not subject to NERC registration. When analyzing the role of demand response in reliability, it is critical to establish criteria that clearly distinguish the types and thresholds of DR relevant to reliability. Thank you for the opportunity to comment.
Response: Thank you. Please see in-line response.		

Organization	Yes or No	Question 8 Comment
Southwest Power Pool - RTO	Yes	

END OF REPORT