Environmental Defense Fund's
Post-Workshop One Comments Regarding ICC MISO Zone 4 White Paper

Environmental Defense Fund ("EDF"), provides the following comments in response to the Illinois Commerce Commission's ("ICC") request for post-workshop comments following the Workshop of December 7, 2017 regarding Midcontinent Independent System Operator ("MISO") Zone 4. EDF submitted pre-workshop comments on November 30, 2017, and appreciated the opportunity to present at the December 7 workshop.

These comments will respond to the comments and presentations of other stakeholders on the state of resource adequacy in MISO Zone 4, to the extent possible given the substantial number of unknown variables that may impact Zone 4 in the near- and long-term. As noted in EDF's Pre-Workshop Comments, EDF continues to request that the ICC amend its timeline to extend the schedule to allow for meaningful stakeholder and Commission analysis and participation. The hurried nature of the workshops and comment periods are exacerbated by a parallel merger, a Pollution Control Board rulemaking, proposed state legislation, Federal Energy Regulatory Commission ("FERC") rulemaking, and PJM market reform proposal request. Each of these processes has deadlines running concurrently to these ICC Workshops. This presents two particularly important problems: 1) stakeholder resources are greatly strained, and 2) the evolving nature of the issues in each of those concurrent processes creates moving targets which make it extremely difficult to provide comprehensive analysis at any one point in time.

No Resource Adequacy Problem Exists

Every stakeholder, excepting Dynegy and MISO, emphasized in their pre-workshop comments (and presentations, where applicable), the positive resource adequacy outlook for Illinois. In fact, even MISO had no choice to concede that, at least in the short-term, there is no resource adequacy concern. *See* MISO Pre-Workshop comments at 1. Only Dynegy asserts a potential near-term adequacy issue, and that is solely on the basis of Dynegy's threatened closure of certain of its own generation. *See* Dynegy Pre-Workshop comments at 1, 4.

The ICC Whitepaper notes that Dynegy has, over the past several years, made several announcements regarding potential retirement of generation assets. ICC Whitepaper at 8. It is Dynegy's "past and potential future" retirements that are the source of MISO's expressed resource adequacy concerns. *Id*. at 9. Dynegy has - in this and other processes - used its position as the largest generator in downstate Illinois to attempt to strong-arm regulators and legislators into "solving" a problem that does not exist (and, if it does, it is a problem of Dynegy's own creation).

Dynegy relies on politically-sensitive narratives, such as reliability and economic impact, as a scare tactic. *See* Dynegy December 7 Presentation at 6. The reality is that Dynegy's aging coal fleet is simply not economically competitive, and its units may not be necessary to maintain resource adequacy. The ICC is quite right to propose, as its first potential policy option, continuing to rely on existing competitive forces and market structures. ICC Whitepaper at 17.

A. The Fallacy of Conflating Reliability and Resource Adequacy

Reliability and resource adequacy markets are separate issues, and the ICC and other bodies currently considering Dynegy's requests must distinguish between the two. "Resource adequacy," as used by MISO and the North American Electric Reliability Corporation ("NERC"), refers to ensuring enough MW of supply capacity for a one day in every ten year peak load event, termed a "Loss of Load Event." ICC Whitepaper at 3-4. Resource adequacy markets pay for that capacity to be available. Separately, reliability, as addressed by MISO and NERC, is the product of activities taken on a day-by-day, hour-by-hour, minute-by-minute, and second-by-second basis in coordination with system owners and the grid operator to serve the physical needs of transmitting and balancing AC power over large geographic areas.

One way to consider the distinguishing characteristics of "resource adequacy" and "reliability" is to consider the difference between the unlikely scenario of a resource adequacy shortfall and a reliability disruption. A shortfall in capacity would trigger a number of events, beginning with voluntary load-shedding, and ultimately progressing to controlled brown-outs. Reliability, on the other hand, involves the day-to-day balancing of the grid. A grid can be unreliable despite a surplus of capacity. Conversely, a grid can still be reliable despite a modeled capacity shortfall.

The NERC 2017 Long-Term Reliability Assessment (Attachment A to these comments), explains that the changing composition of the North American resource mix, such as the replacement of conventional generation with wind, solar and natural gas, will have different reliability implications and necessitate a different set of planning considerations. Attachment A, NERC 2017 Long-Term Reliability Assessment at 18. For example, increased distributed energy resources lead to a higher potential for a bidirectional flow of energy, blending distribution and transmission.

As the wholesale electric system continues to evolve, with a spread of new resources, the grid operators need more and better resources to provide flexibility. Dynegy has proposed the opposite in this process, seeking to limit market participants that could meet day-to-day reliability needs, taking those functions out of separate markets and requirements and lumping them in with payments for resource adequacy.

Rather than improve reliability, this would make the grid less reliable, cutting off the hands of the grid operator, regulators and markets to find new technologies and capabilities to serve grid needs, leaving them with older and slower large generators.

Frequency Regulation. The prime example that EDF presented during the workshop was the move in PJM to reform frequency regulation services that support reliability. PJM historically relied on large generators to provide regulation service to help balance the grid to keep it at 60 Hz. Payments were collected from electricity customers and paid to generators for ramping up and down in response to market signals every 10 minutes, and only had to be accurate at least 70% of the time. In response to a FERC Order, PJM determined that it needed greater flexibility on the grid for frequency regulation services, and created a new Reg D signal and associated market. This new signal called for market participants to respond every 2 seconds, which large generators simply cannot do. Instead, the PJM market saw a rapid influx of energy storage systems that could respond to the Reg D signal in less than 2 seconds with greater than 95% accuracy. More than 120

MW of energy storage was deployed in Northern Illinois in a short amount of time to serve this market, providing regulation service faster and cheaper than large generators.

The Dynegy proposal moves in the opposite direction, locking in such reliability services that need to be executed year-round to be provided only by large generators that primarily serve peak power needs. This market design creates a pointless, irrational, and detrimental bias toward only incumbent large generators that operate inflexibly, limiting supply and driving up prices unnecessarily.

In its review of the resource adequacy questions in this workshop process, the ICC should separate out the reliability requirements interjected into the discussion, and focus solely on the overall topline question of resource adequacy.

Separately, the ICC can, either through the forward-looking NextGrid process or a separate proceeding, discuss ways to improve the functions and markets for different day-to-day or other reliability questions included by Dynegy in their legislative proposal:

- transmission security
- voltage support
- dynamic stability
- frequency response
- fuel security and on-site fuel supply
- import transfer capability

See 100th Gen. Assem., House Bill 4141 2017 Sess.; SB 2250.

A thoughtful investigation of these reliability questions would not seek to lump them into a capacity market, or use them as a scoring system for a capacity market, but instead to determine the fundamentals of their grid value and how different technologies could meet their needs. The investigation should raise the following questions:

1. What are the various functions on bulk transmission system that are needed to maintain reliability of power delivery?
2. What are the risks of failure for each of those functions and the likelihood of those risks?
3. What technologies can provide those functions (energy storage, smart inverters, equipment, traditional generators, DER)?
4. How well do different technologies perform those functions?
5. How can (and should) markets be designed to allow different actors and technologies to perform those functions (such as the frequency regulation reform at other RTOs)?
6. What rules and regulations at MISO could be changed to allow for new actors to perform reliability functions better and at a lower cost?

In the next Workshop, the ICC should consider the question posed in EDF's Pre-Workshop Comments: What tools other than a capacity market are available for ensuring reliability of resource adequacy is met primarily from out-of-state resources?

B. No Analysis Shows That Dynegy Retirements Would Threaten Resource Adequacy

Though the crux of Dynegy's argument (relied upon by MISO and ICC through various recommendations) is that retirements of Dynegy plants would threaten resource adequacy. The

import of Dynegy's role in ensuring resource adequacy is repeatedly cited: "[Dynegy's] plants have been responsible for nearly 50 percent of electricity production in MISO Zone 4." ICC Whitepaper at 8. The implication of such statements is certainly to equate Dynegy fleet operations with resource adequacy. Dynegy happily uses that narrative to its advantage, asserting that, as a result of low capacity revenues, a number of its units are "at risk" of being shut down in the near future. Dynegy Pre-Workshop Comments at 4.

EDF's December 7 Presentation showed that Dynegy's coal fleet is far from the only available resource to meet resource adequacy needs. *See* EDF December 7 Presentation at 2. Additionally, renewables and efficiency incentives and goals created by the Future Energy Jobs Act are set to both reduce demand and increase supply beginning in the year 2018.

However, tellingly, Dynegy's comments include no comprehensive analysis which shows that, even if Dynegy retires its "at risk" units, resource adequacy will be at risk given those upcoming capacity need changes. Dynegy relies on a simple math calculation, averring that a projected peak demand of approximately 9,000 MW in MISO Zone 4, minus Dynegy retirements of 750 MW, equals projected load with no reserve. Dynegy Pre-Workshop Comments at 5. Dynegy includes a table purporting to show the impact of shut down or removal (to other markets) of Dynegy units on capacity in MISO Zone 4. *Id*. at 4. Dynegy's calculations omit a number of key considerations.

MISO's most recent resource adequacy survey noted increased future capacity based on the current interconnection queue -- including twenty-eight generator interconnection projects totaling almost 4,400 MWs of capacity in the MISO Zone 4 queue as of October 2017. ICC Whitepaper at 2. This represents over two-thirds of Dynegy's total capacity of 6,500 MWs, and nearly 150% more than Dynegy's 3,000 MW of generating capacity in Downstate Illinois which it categorizes as "at risk of shutdown or removal from the Zone 4 market." Dynegy Pre-Workshop Comments at 4.

Dynegy's analysis also ignores that the resources retired by Dynegy could be replaced, or are already offset, by resources from other MISO zones, or imports from other RTOs. Remaining units could even increase their capacity factors.

The NERC Report shows that MISO has a surplus of prospective resources through at least 2027. NERC 2017 Long-Term Reliability Assessment at 41. In fact, prospective resources could create a surplus of anywhere from 26-24% every year from 2018-2027. *Id*. Additionally, PJM, which has significant import and export capabilities that could serve the MISO region, has even more incredible anticipated and prospective surpluses. NERC calculates as much as a 60% prospective reserve margin by 2022. Even in the most conservative "anticipated" analysis, PJM should see at least a 27% reserve margin every year 2018-2027.

A properly-constructed MISO resource adequacy analysis would consider the impact on resource adequacy of retirement of varying levels of Dynegy units at varying future points in time, in conjunction with additional expected future capacity. Variables considered in the analysis should include: future capacity additions and the rate at which they will come online, ability to increase capacity factors of non-retiring units, load growth changes as a result of FEJA initiatives, and available resources from other MISO zones or other RTOs. Additional analysis should then be performed to test differences between retiring different units at different points in time. For example, the results of such an analysis would likely be different if all Dynegy units in Zone 4

were retired at once, if certain units were retired while others remained operational. The analysis would likely even change based upon the order of retirement of units.

As such, a comprehensive analysis is necessary to test Dynegy's claims of resource adequacy shortfalls in the face of unit retirements. Neither Dynegy nor any other stakeholder has presented such an analysis to date, but the substantial number of variables described above - combined with the current projected capacity surplus - indicate that at least some plant retirements may not have the dire consequences alluded to by Dynegy.

EDF appreciates the Commission's consideration of these comments, and looks forward to further discussions in the next Workshop. EDF encourages a discussion of the NERC 2017 Long-Term Reliability Assessment, attached to these comments, at that Workshop.

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Respectfully Submitted,

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