

# **Duke Energy—Ohio Duke Energy—Kentucky Integration Stakeholder Meeting**

Cincinnati, OH  
September 17, 2010

- Introductions and Welcome
- Duke Integration Overview
- FTR Transition
- RPM Transition
- Transmission Service Conversion
- RTEP Transition
- Participant Readiness
- Training

- Operations Integration
- Regulatory / Legal Activities
- Generator Interconnection Process
- PJM Demand Response Programs
- Other Questions and Concerns

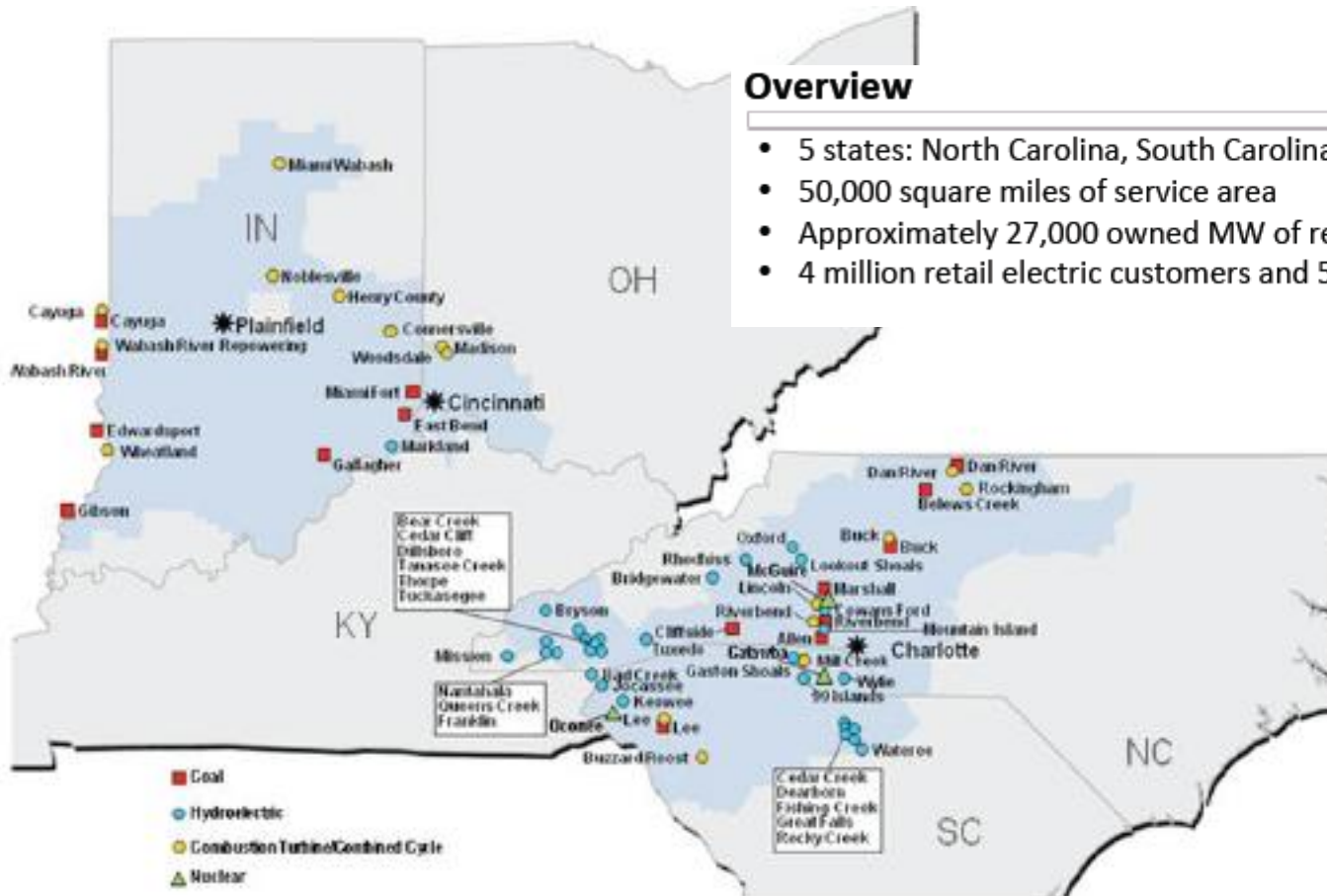
# Duke Energy—Ohio Duke Energy—Kentucky Integration Overview

## Duke Energy – Ohio and Kentucky to integrate into PJM operations on January 1, 2012.

[This date coincides with the expiration of Duke Energy – Ohio’s current Electric Security Plan – Standard Service Offer]

### Overview

- 5 states: North Carolina, South Carolina, Indiana, Ohio and Kentucky
- 50,000 square miles of service area
- Approximately 27,000 owned MW of regulated generating capacity
- 4 million retail electric customers and 500,000 retail gas customers

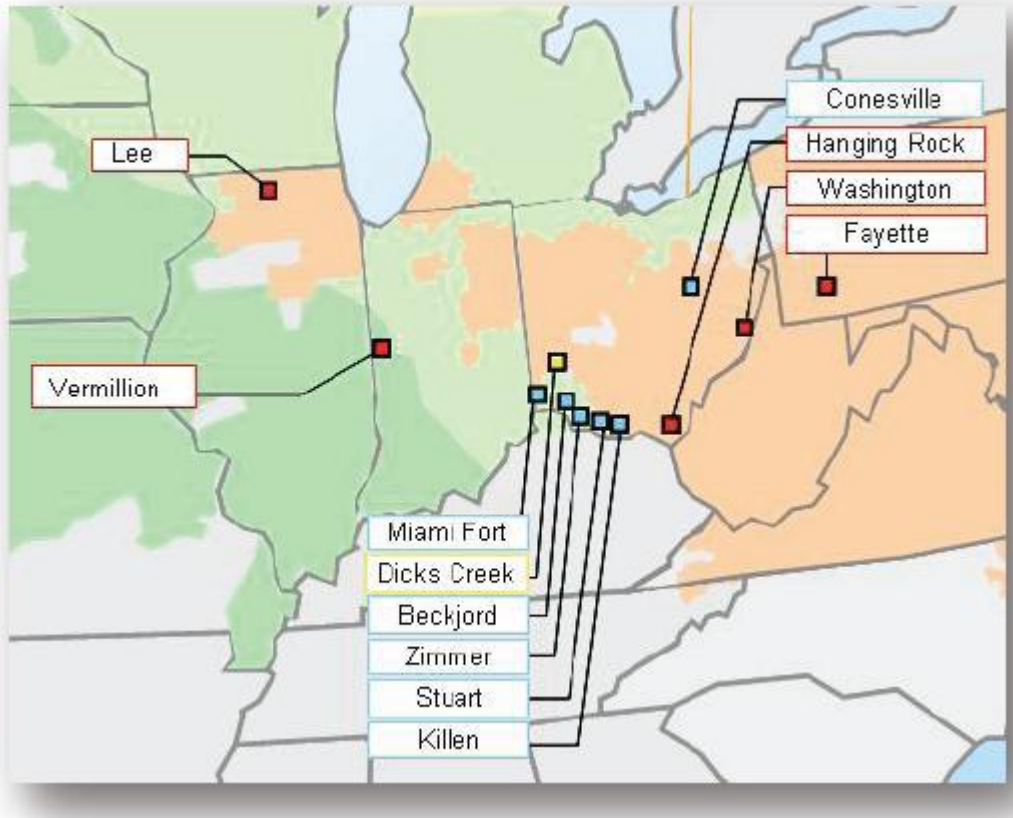




# Summary of Duke Energy Ohio and Kentucky Generation Integrating Into PJM

Duke Energy Ohio	Summer Net MW	
Conesville 4	312	DEO Share
Stuart 1-4 *	912	DEO Share
Killen 2	198	DEO Share
Miami Fort 7-8	640	DEO Share
Beckjord 1-6	859	DEO Share
Zimmer 1	605	DEO Share
Dicks Creek 1,3,4,5	136	
Miami Fort CT 3-6	56	
Beckjord CT 1-4	188	
OVEC	203	DEO Share of OVEC Gen
Duke Energy Kentucky		
Miami Fort 6	163	
East Bend 2	414	DEK Share
Woodsdale 1-6	500	
<b>Total</b>	<b>5,186</b>	

\* Unit is currently located within the PJM footprint and Duke's portion is pseudo-tied into MISO



## Duke Energy Ohio

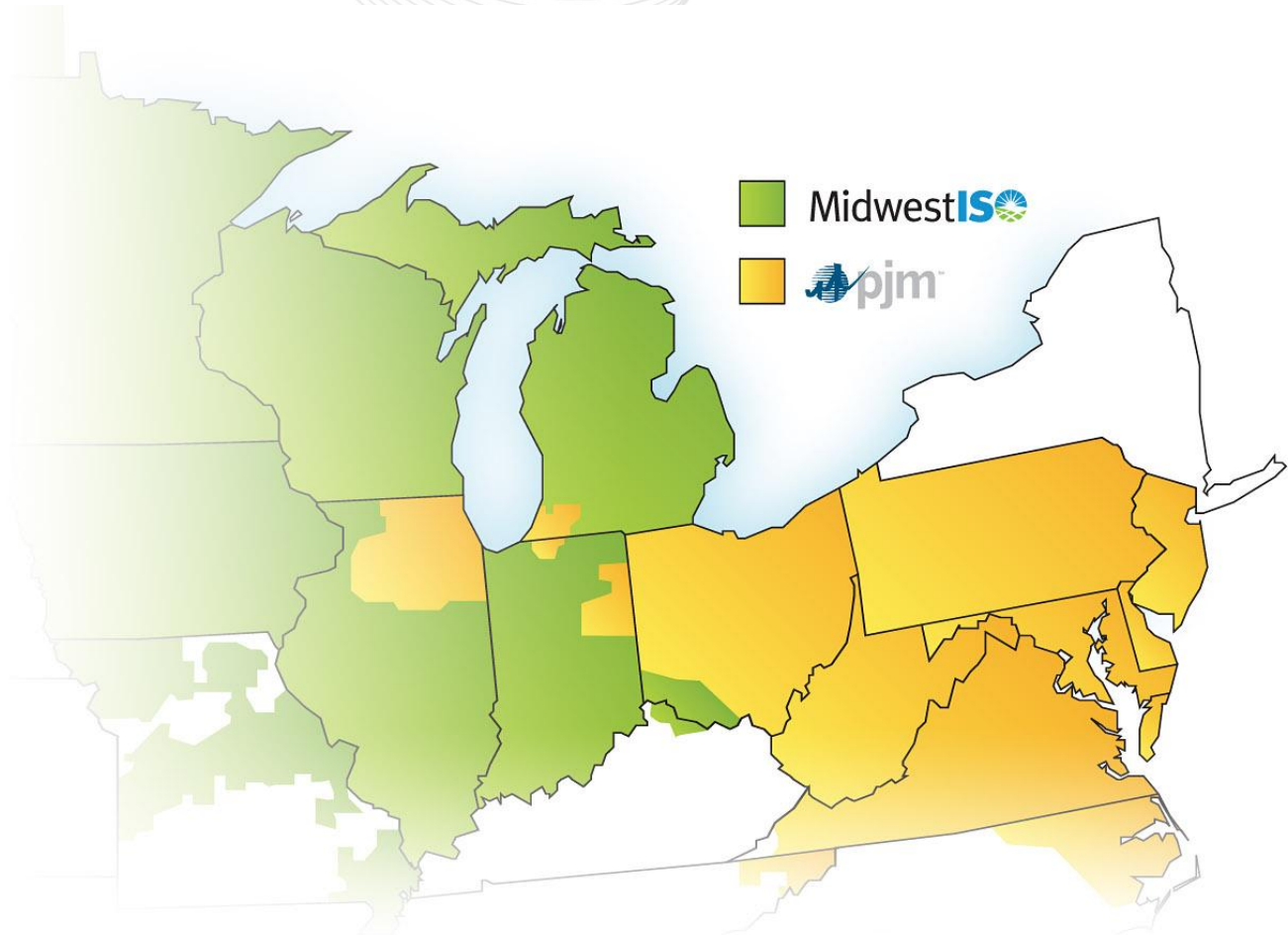
BECKJORD	1,047
CONESVILLE	312
DICKS CREEK	136
KILLEN	198
MIAMI FORT	696
STUART	912
ZIMMER	605
Hanging Rock +	1,240
Fayette +	620
Washington +	620
Lee +	624
OVEC	203
<b>Total</b>	<b>7,213</b>

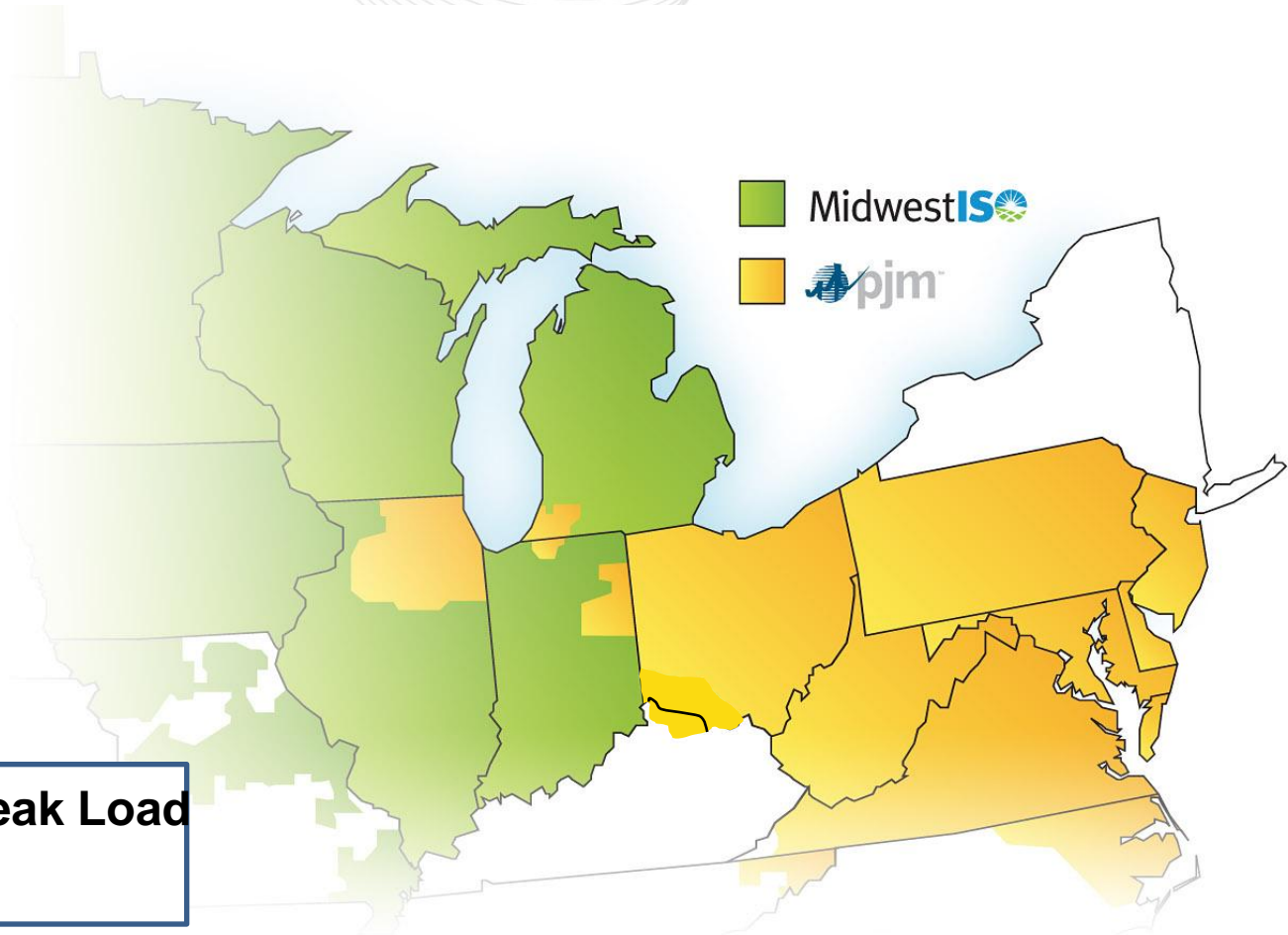
## Duke Energy Kentucky

EAST BEND	414
MIAMI FORT	163
WOODSDALE	500
<b>Total</b>	<b>1,077</b>

**Grand Total** 8,290

+ Unit is currently being offered into the PJM market by Duke





**2009 System Peak Load**  
5,033 MW

# Estimated Integration Costs

	Est. Expense	Est. Capital
Operations	\$500,000	\$300,000
Markets	\$400,000	\$300,000
Planning	\$100,000	\$100,000
IT Infrastructure	\$200,000	\$200,000
Audit Prep/Execution	\$100,000	
Legal Fees	\$300,000	
Project Management	\$400,000	
Training	\$100,000	
<b>TOTAL</b>	<b>\$2,100,000</b>	<b>\$900,000</b>

**October 2010** – IRM Study and Generator deliverability tests completed



**January 2011** – Load deliverability tests completed  
CETO/CETLs for the Duke Load Deliverability Area provided

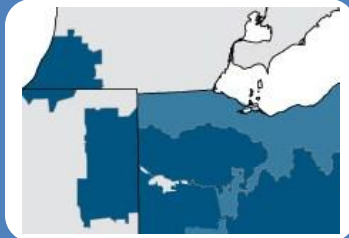
**May 2011** – RPM Base Residual Auction for 2014-2015 delivery year completed

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**September / October 2011** – Special FTR Allocation for January – May 2012 conducted

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**December 2011** – FRR Plans submitted for 2011-2012, 2012-2013 and 2013-2014 delivery years



PJM EMS Model to be expanded to include all of the DE-O and DE-K assets and more of Kentucky and TVA



All transmission and generator outages submitted into eDART to support the outage planning process



All transmission operators and generator operators to become PJM-certified

**June 15, 2010**

Duke and PJM  
have executed  
an integration  
agreement

**June 25, 2010**

Duke  
submitted  
integration  
filing to  
FERC

**November 1, 2010**

Duke  
requested  
FERC  
filing  
approval

**August 16, 2010**

Submission  
of capacity  
transition  
filing to  
FERC

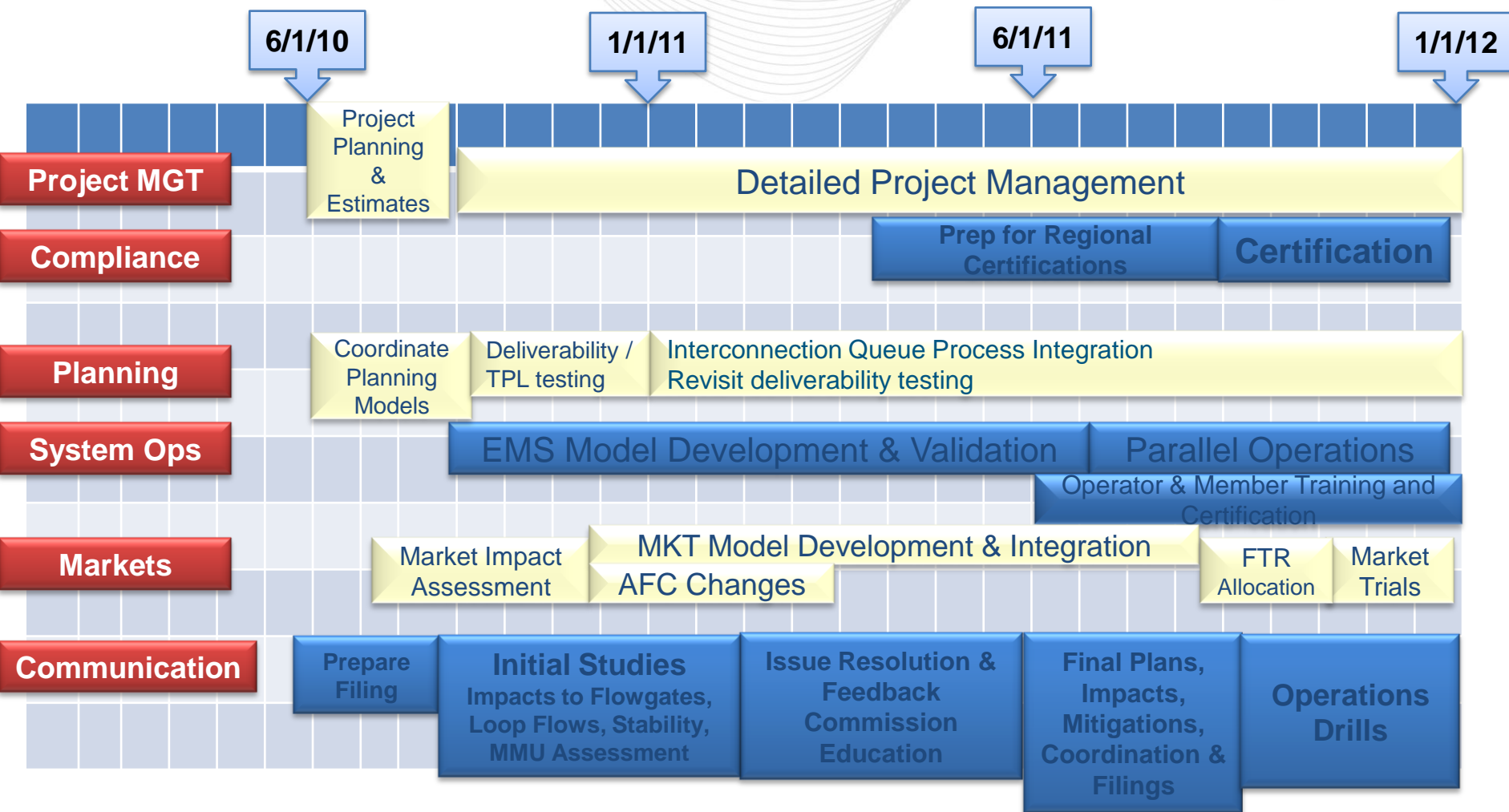
**December 1, 2010**

Requested  
FERC approval  
of capacity  
transition filing

**Later**

Additional  
FERC filings  
in support of  
Duke  
integration

# Integration Timeline



# FTR/ARR Transition

- MISO and PJM Comparison
- Transitional and Annual ARR/FTR
- Schedule and Training

# Comparison of MISO and PJM ARR/FTR

	MISO	PJM
Planning Period	June thru May	June thru May
Annual ARR Allocation	Seasonal	Annual only
	Value based on Annual Auction Clearing prices	Value based on Annual Auction Clearing prices
	OnPeak or OffPeak	24H only
	Stage 1A nominations to Base load	Stage 1A nominations to Base load
	Restoration	No Restoration
	Stage 1B nominations to Peak Load	Stage 1B nominations to Peak Load
	Stage 2 is automatic distribution of excess revenue from Annual Auction	Stage 2 is a three round nomination period for ARR paths. Source can be to any Generator, Interface, Zone, and Hub. Sink is Load zone.
Annual FTR Auction	Seasonal	Annual only
	Obligations	Obligations and Options
	OnPeak or OffPeak	OnPeak, OffPeak, or 24H
	Self Scheduling available	Self Scheduling available
Monthly Auctions	Obligations	Obligations and Options
	OnPeak or OffPeak	OnPeak, OffPeak, or 24H
	Prompt month period	Any of next three months or full quarter remaining in planning period
Long Term Auction	No Long Term Auction	FTRs available for any of next three planning periods not including current planning period. Three rounds conducted in June, September, and December.
Load Shifting	ARRs shift as Load shifts	ARRs and directly allocated FTRs for new zones shift as load shifts
FTR Credit Requirements	Yes	Yes

## Transitional FTR Allocation

- Special FTR Allocation will cover the period of time between the implementation of the Duke zone and the next Annual ARR Allocation.
- FTR nominations in October 2011 for FTRs effective 1/1/12 thru 5/31/12
- FTRs available in Stage 1A, 1B, and 2
  - Stage 1A and 1B available source points only at historical resources
  - Stage 2 available source points to any generator, interface, zone, or hub
- ARRs not available for Transitional period
- Allocated FTRs in transitional allocation will be valued based on hourly congestion component of LMP from day-ahead market.
- Allocated FTRs will shift with load.

## Annual ARR Allocation and FTR Auction

- ARR nominations in March 2012 for ARR effective 6/1/12 thru 5/31/13
- ARRs available in Stage 1A, 1B, and 2
  - Stage 1A and 1B available source points only at historical resources
  - Stage 2 available source points to any generator, interface, zone, or hub
- LSEs in newly integrated zone(s) may elect to receive a direct allocation of FTRs for up to two allocations following their integration [Section 5.2.2 paragraph (e) of the PJM Operating Agreement]
  - Self Scheduling not available for LSEs that elect this option. Directly allocated FTRs shift as load shifts.
  - Available for 2012/13 and 2013/14 planning periods
- FTR Annual Auction available points include Duke zone and generators.

## ARR Historical Resource List

- Historical Resource List to be used for Stage 1 allocation will be same list used in MISO

## Monthly and Long Term FTR auctions

- Duke points will be available for the January 2012 Monthly FTR Auction only if integration is definitive before auction opens.
- Duke points will be available for the 2013/16 Long Term Auction which opens June of 2012.

## FTR Schedule and Training

- Annual ARR/FTR training conducted January/February each year.
- Special ARR/FTR training for Duke zone can be conducted before transitional FTR allocation in September/October of 2011.
- Annual FTR training presentation located on main FTR page at below link.

<http://www.pjm.com/markets-and-operations/~media/markets-ops/ftr/2009-annual-ftr-auction-training.ashx>

# RPM Transition

Duke Ohio filed an FRR plan with FERC on 8/16/2010. The docket is ER102254.

- The plan calls for Duke to pursue an FRR Alternative, generally following PJM's Reliability Assurance Agreement Schedule 8.1.
- There will not be a capacity auction for the FRR Period
- As part of that filing Duke stated that it will self supply the PJM Reliability Requirement with owned generation, demand response, energy efficiency and bilateral contracts.
- Wholesale LSEs may be included in the Duke Energy Ohio FRR Plan, or may submit its own FRR Plan to PJM.
- Certified Retail Electric Suppliers may be included in the Duke Energy Ohio FRR Plan or may opt-out all or a portion of their reliability requirement.
- LSEs will pay Final Zonal Capacity Price in the unconstrained zones in the PJM region.

- Duke zone will be integrated into PJM on January 1, 2012
- Duke to submit out-of-time FRR Capacity Plans for partial 11/12 DY (Jan 1, 2012 – May 31, 2012), 2012/13 DY and 2013/14 DY
  - RPM Auctions for 2011/12 DY, 2012/13 DY and 2013/14 DY conducted in May 2008, May 2009 and May 2010, respectively
- Capacity procured for Duke zone through regular RPM schedule for 2014/15 DY
  - RPM Auction for 2014/2015 DY to be conducted in May 2011

- Preliminary Zonal UCAP Obligation based on Preliminary Zonal Peak Load Forecast and Forecast Pool Requirement (FPR)
  - Partial 2011/12 DY(Jan 1 – May 31) FPR = 1.0833
  - 2012/13 DY FPR = 1.0815
  - 2013/14 DY FPR = 1.0804
  
- Final Zonal UCAP Obligation based on Final Zonal Peak Load Forecast and updated IRM/FPR.

Delivery Year	Prelim Zonal UCAP Obligation Posted	Final Zonal UCAP Obligation Posted
2011/12	N/A	January 1, 2011
2012/13	January 1, 2011	January 2012
2013/14	January 1, 2011	January 2013

- Capacity will be procured through self supply and bilateral contracts.
- Supply contracts will be negotiated with potential suppliers beginning April 1, 2011 through June 1, 2011. Duke Energy Ohio reserves the right to select offers.
- Agreement terms will be based on standard EEI Agreements and ISDA Agreements which include a Power Annex.
- Credit requirements will be negotiated prior to the execution of respective agreements.
- Duke will procure resource-specific available capacity from:
  - generation which is deemed deliverable to the unconstrained zones in the PJM region by PJM and has not cleared in a previous auction or committed to another entity for the same delivery period.
    - Includes generation within the Duke zone, elsewhere in the PJM region and also external to the PJM region
  - Demand Response (DR)
  - Energy Efficiency resources (EE)

- Existing DR providing capacity within the Duke zone prior to the transition from MISO to PJM may be identified as an eligible resource by PJM, as long it meets PJM protocols. Duke Energy is still conducting internal discussions concerning the transition of certain DR programs to PJM.
- Existing and planned DR which resides outside of the Duke zone, but in the PJM region may participate in the Duke Energy Ohio FRR Plan as long as the resource is registered in eLRS prior to the start of the delivery year.
  - For the partial year beginning January 1, 2012 through May 31, 2012, DR must be registered in eLRS prior to June 1, 2011 and must meet test / event compliance requirements in the summer of 2011.
- EE both in the Duke zone and elsewhere in the PJM region must have an approved Measurement & Verification plan and must be installed prior to June 1, 2011 (if participating in the FRR Plan for the partial 2011/12 DY).

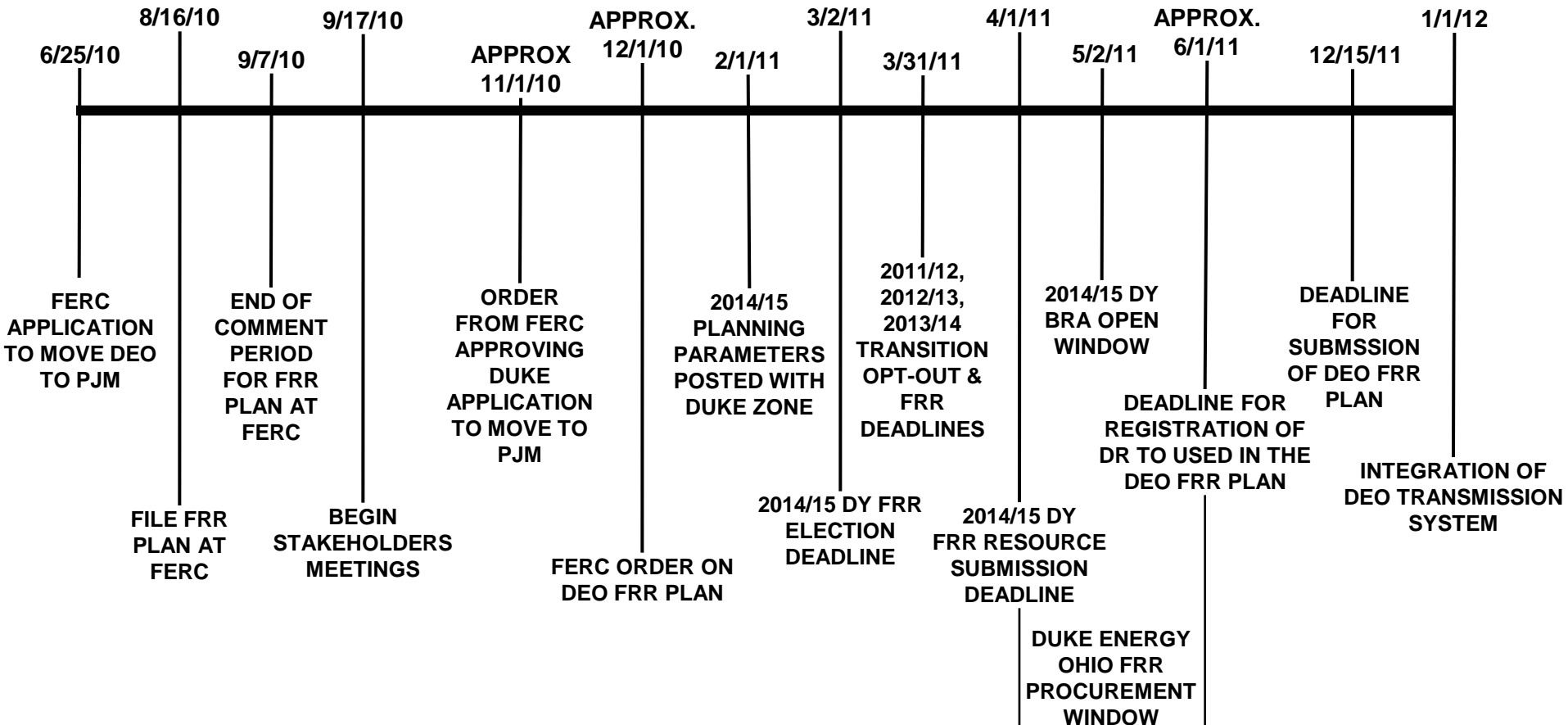
- LSEs serving wholesale load can either participate in the Duke Energy Ohio FRR Plan or enter into its own out-of-time FRR Plan with PJM.
- Certified Retail Electric Suppliers can participate in the Duke Energy Ohio FRR Plan or opt-out of the plan for all or a portion of their reliability requirement for any or all of the transition terms – 2011/12 (Jan 1, 2012 – May 31, 2012), 2012/13, 2013/14.
- LSEs which participate in the Duke Energy Ohio FRR Plan will be required to sign the LSE Capacity Payment Agreement .
- Certified Retail Electric Suppliers which opt-out of the Duke Energy Ohio FRR Plan will be required to sign both the LSE Opt-Out Agreement and the LSE Capacity Payment Agreement.

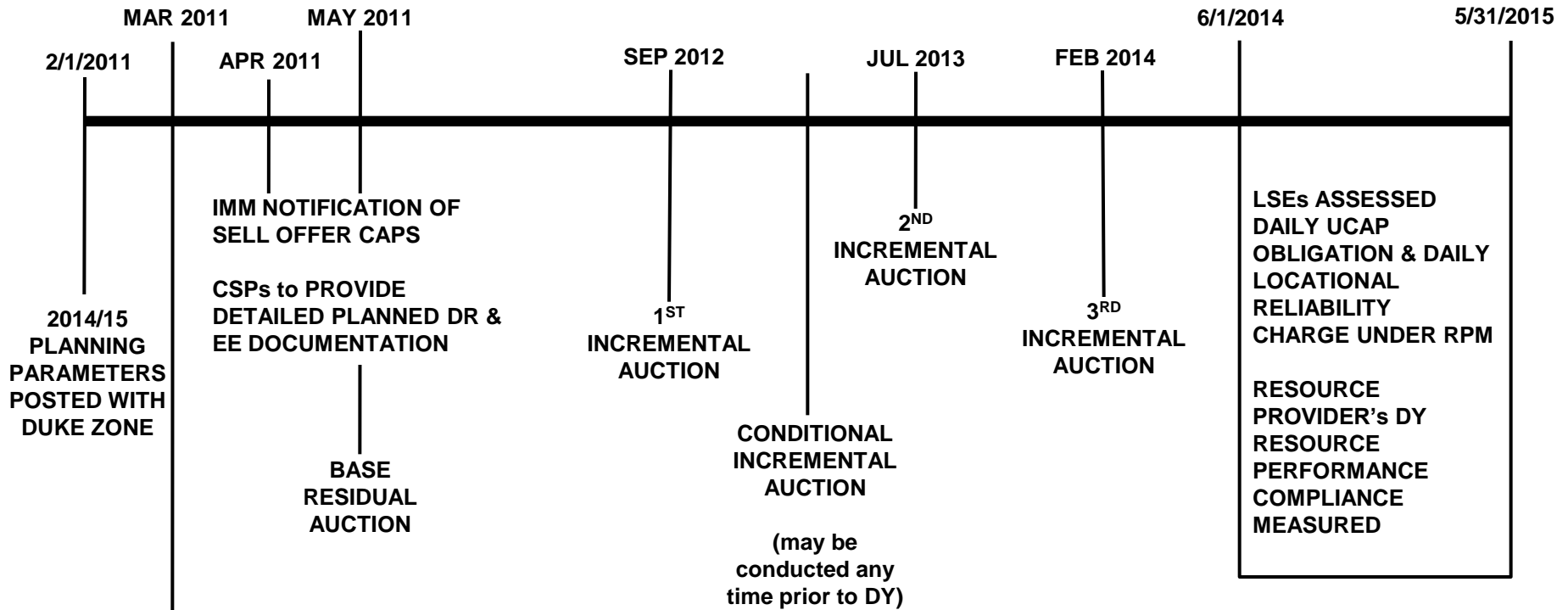
- LSEs serving wholesale load that qualify and choose to model their load as a separate area in the Duke zone must provide a written notification of such election to Duke and PJM no later than March 31, 2011.
  - LSEs serving wholesale load will be notified of their wholesale area capacity obligation by January 31, 2011
- Such LSEs have two options for satisfying their load outside of the Duke FRR plan
  - Elect a traditional FRR plan for a 5 year minimum term (including the 2011/12 DY)
  - Elect an out-of-time FRR plan to cover the 29 month term during the transitional period
- FRR plans must be submitted by December 15, 2011

- Certified Retail Electric Suppliers in the Duke zone also may “opt-out” for any or all of the Delivery Years during the transitional period
  - Must provide written notification of such election and a capacity resource plan to Duke and PJM no later than March 31, 2011.
  - Will be required to transfer unit-specific capacity bilaterally to Duke for the period of Jan 1, 2012 – May 31, 2012 and the 2012/13 & 2013/14 DYs in order for Duke Energy Ohio to commit such capacity in their FRR Capacity Plans.
    - Unit-specific capacity transactions must be submitted shortly after the LSE’s capacity resource plan is accepted by Duke and PJM

- All LSEs which participate in the Duke Energy Ohio FRR Plan must meet the following credit requirements or post the following security:
  - Rating – BBB- (S&P) or Baa3 (Moody's)
  - Security - \$14,500 per MW of Reliability Requirement – (Not Yet Finalized)
- LSEs which wish to opt-out of the Duke Energy FRR Plan must meet the following credit requirements or post the following security:
  - Rating – BBB- (S&P) or Baa3 (Moody's)
  - Security - \$17,500 per MW of Reliability Requirement – (Not Yet Finalized)
- LSEs serving wholesale load that enter into independent out-of-time FRR plans with PJM have no credit obligations to Duke and are only subject to PJM credit requirements.
- Parties that do not meet the credit requirements may provide a guarantee from a parent company or other corporate entity that does meet the credit requirements, in lieu of a letter of credit or cash.
- All security will be posted at the time that agreements are executed.

# Capacity Transition Timeline





- SUBMISSION DEADLINES FOR 2014/15 DY:**
- ACR DATA SUBMITTAL
  - NOTIFICATION OF INTENT TO OFFER PLANNED RESOURCES

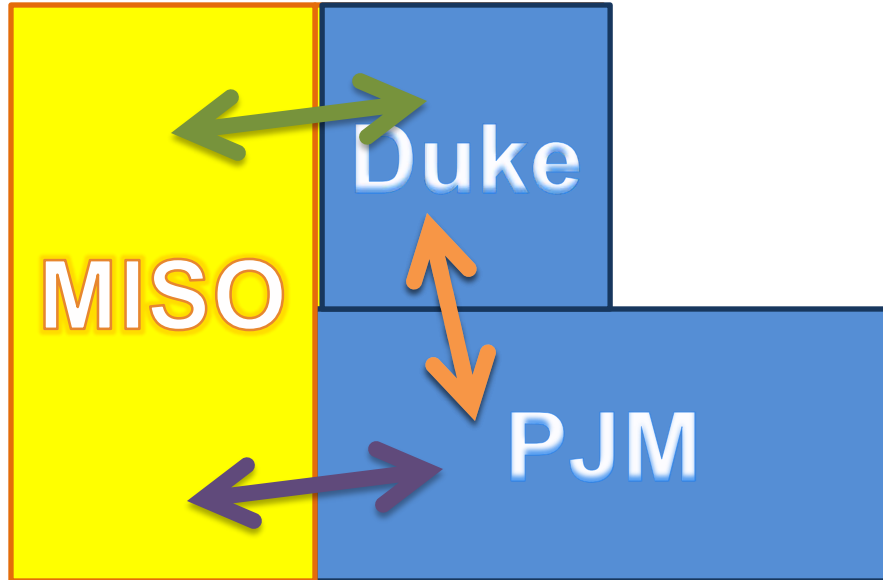


# Transmission Service & Congestion Management

OASIS Hotline  
(610) 666-8972  
[oasisadmin@pjm.com](mailto:oasisadmin@pjm.com)

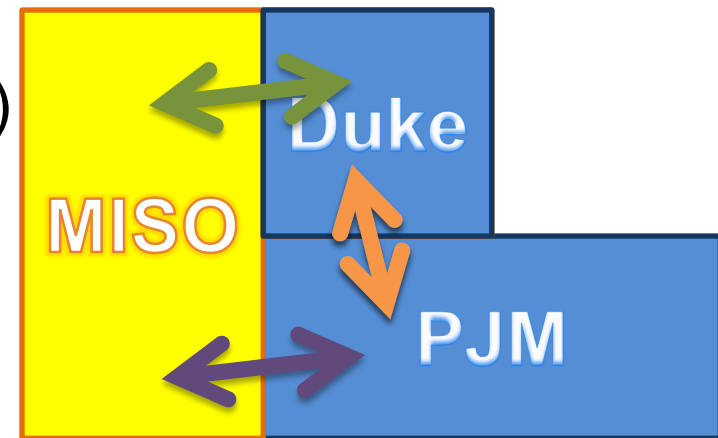
- Affects Market to Market coordination and TLR
- May be new and/or removed flowgates
- Flowgate ownership changes
- The same IDC case and historic date is used

1/1/2012



- Existing **Duke/PJM** service becomes **internal (no reservation)**
- **MISO-Duke** internal becomes **MISO/PJM**
- Other **MISO/PJM** service is unaffected
- Available service (ATC) may change

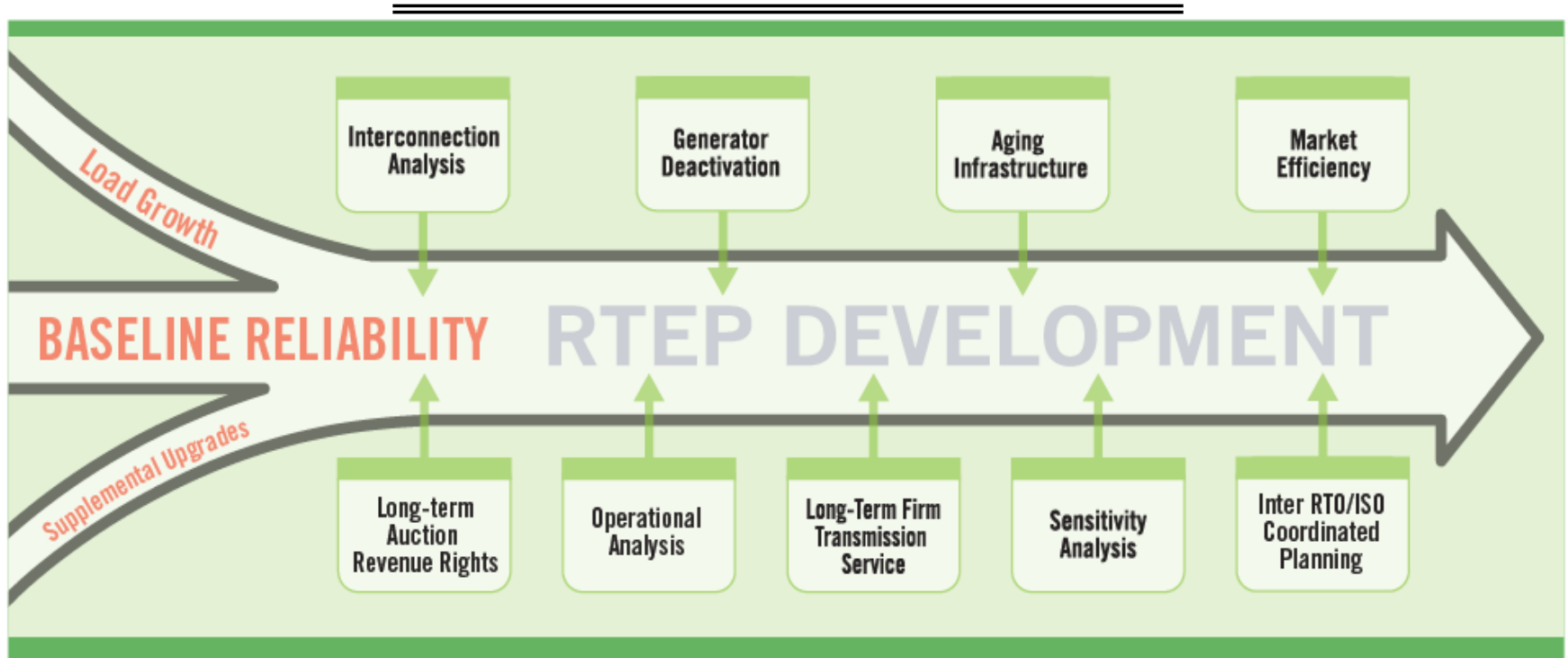
- MISO evaluates MISO-Duke paths until 1/1/2012
  - Automatic conversion of TSRs and network resources
- Model change affects ATC
  - Simultaneous window (shotgun) approach for increase in short-term service
  - Impacts will be considered in long-term service requests



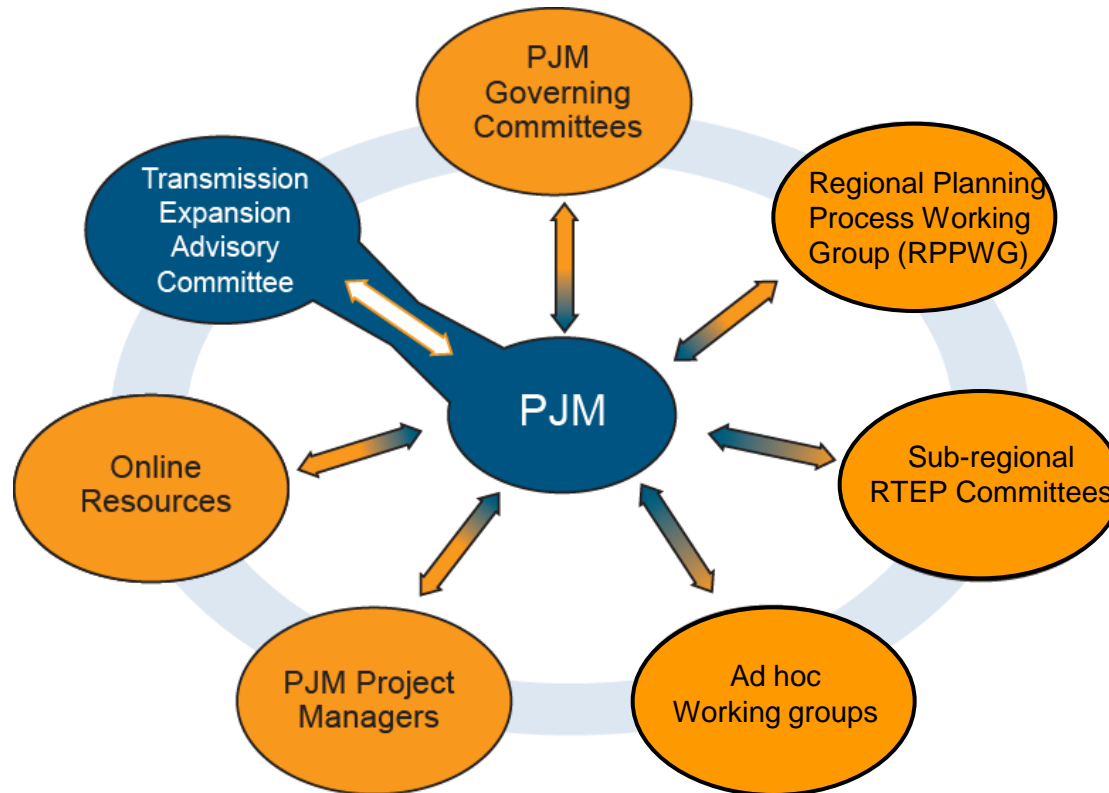


# Regional Transmission Expansion Plan (RTEP)

- ❖ Ongoing and cyclical
- ❖ 15 year planning horizon
- ❖ RTEP issued each year
- ❖ Baseline analysis
- ❖ Interconnection analysis
- ❖ Coordinated planning w/ adjacent areas



- ❖ Open
- ❖ Transparent
- ❖ Collaborative
- ❖ Topics...process, plans, FERC compliance, implementation issues...etc



## Transmission Expansion Advisory Committee (TEAC)

- ❖ Input on scope and assumptions of RTEP analyses
- ❖ Review & comment on results to date and planned upgrades
- ❖ Provide comments and recommendations to the PJM Board or as requested by the PJM Board itself
- ❖ No TEAC RTEP approval authority; that rests with the BOM

- ❖ Near term effort will be in support of upcoming RPM activities
- ❖ Installed Reserve Margin (IRM)
- ❖ Generation deliverability testing
  - Test the resources within the Duke zone to determine deliverability within PJM
- ❖ Load Deliverability – Planning Parameters for May RPM Auction

- ❖ 2011 RTEP will model the Duke zone as part of PJM
- ❖ PJM staff will develop load forecasts for the Duke zone starting with the PJM 2010 Load Forecast Report (issued January 2010).
- ❖ Interconnection queue coordination
- ❖ Resources:
  - <http://www.pjm.com/planning.aspx>
  - Manual 14B – PJM Region Transmission Planning Process  
<http://www.pjm.com/documents/~media/documents/manuals/m14b.ashx>

# Participant Readiness Activities

The participant readiness effort focuses on preparing companies impacted by the Duke integration for participation in PJM's markets

The objectives of this effort are:

- Provide new customers with a central point of contact (Client Manager)
- Provide materials to inform and educate new customers about PJM requirements
- Provide and define criteria that promotes new customer readiness
- Provide checkpoints to facilitate the provision of necessary information to PJM

The integration project team is actively working to identify and contact companies who will be impacted by the Duke Market Integration.

- PJM Client Managers will be contacting impacted companies to discuss the type of activity they will conduct in PJM and understand questions and concerns
- Client Managers will provide a checklist to help new customers identify integration readiness tasks and data required by PJM

The central tool to the readiness process is the Checklist, which contains a list of base requirements that PJM has identified as central to a successful integration.



Each checklist contains a breakdown of readiness topics, including:

- Administrative Tasks (e.g. membership)
- Education (e.g. PJM process and application training)
- Data Submission (e.g. generator data, meter data)
- Application Changes (e.g. scheduling system changes)
- Technical Changes (e.g. connectivity, XML submission)

A generic checklist has been created for six general participant types. Each checklist contains comprehensive information on tasks required and capabilities needed to integrate with PJM.

List have been created for:

- LSEs
- Marketers
- Municipalities
- Generators
- Transmission Owners
- Demand Resources

Participant Readiness Checklists		
Activity	Sub-activity	Action(s)
<b>Load Serving Entities (LSEs)</b>		
Administrative	Membership and Agreements (Level 1)	<p>The following is a list of PJM membership requirements:</p> <ul style="list-style-type: none"> <li>? Become a member of PJM</li> <li>? Sign the PJM Reliability Assurance Agreement (RAA)</li> <li>? Submit Network Transmission Service Agreement for Retail Load Serving Entities</li> <li>? Reviewed OATT</li> <li>? Meet your daily unforced capacity obligation or be subject to deficiency charges</li> <li>? Sign a Transmission Service Enabling Agreement</li> <li>? Sign s Service agreement for Firm and/or Non-Firm Point-to-Point Transmission Service</li> <li>? Complete the credit application</li> </ul> <p>Applications: The appropriate resources within your organization have learned how to:</p> <ul style="list-style-type: none"> <li>? Obtain User IDs/Passwords for required users of each PJM application</li> <li>? Account Managers and users have learned how to use CAM</li> </ul>
		<p><b>Business Procedures:</b> The appropriate resources within your organization have:</p> <ul style="list-style-type: none"> <li>? Obtained an understanding of PJMs scheduling process for generation and load</li> <li>? Obtained an understanding of the PJM Network Model</li> <li>? Obtained an understanding of LMP and LMP Pricing Mechanisms including pricing hubs and other aggregates</li> </ul>

The Readiness Checklist will be quantified to facilitate the assessment of Participant Readiness.

Each section of the checklist is broken into levels of readiness:



- **Level One** – Required criteria for successful implementation
- **Level Two** – Meeting this criteria will improve the success of the integration
- **Level Three** – Meeting this criteria will enhance the integration

- Client Managers will conduct an initial meeting with primary contacts from each company (Reps) to review and update a Readiness Checklist.
- Client Managers and Reps will work together to modify the checklist to meet the specific needs of the participant.
- Reps and Client Managers will speak on a regular basis to determine status of readiness tasks.
- The status process will also help PJM to identify key issues and mitigate risks on a week-to-week basis.
- Status will be reported throughout the readiness process to the individual participant and the PJM RTO Integration team.
- *The Rep can use the checklist as one tool for communicating status internally.*

There are several resources companies can use to prepare to integrate into PJM.

- Market Integration Website
  - (<http://www.pjm.com/markets-and-operations/duke-integration.aspx>)
  - White papers
  - FAQs
  - Market Integration Updates
  - New Member Readiness Guide
- PJM Manuals ([www.pjm.com](http://www.pjm.com))
- Committees and Working Groups
- Training Sessions
- Market Trials (Fall 2011)

## Client Managers:

Jim Kirby:                      610-666-8872                      kirbyjw@pjm.com

Glenn Weiss:                      610-666-8855                      weissgc@pjm.com

## Customer Relations Hotline

866-400-8980                      custsvc@pjm.com

# Stakeholder Training

- A series of training programs will be held within the Duke footprint to prepare stakeholders for integration
  - Tentatively scheduled from Nov 2010 to Sept 2011
  - Cincinnati/Charlotte locations
- Additional training sessions will be available in other parts of the PJM footprint, as well as online
  - Links to 2010 and 2011 Annual Training Plans
    - <http://www.pjm.com/~media/training/2010-annual-training-plan.ashx>
    - <http://www.pjm.com/~media/training/2011-annual-training-plan.ashx>
- Training is targeted towards three main groups of stakeholders:
  - Transmission: owners, operators and engineering support staff
  - Generation: owners, operators, schedulers, power marketers, traders
  - Load serving entities

- All local control center (LCC) operators must be PJM certified prior to integration
- LCC program is designed to
  - Orient participants to the working knowledge needed to operate on the PJM transmission system
  - Help prepare operators for PJM certification exam
- LCC program qualifies for NERC Continuing Education Hours

- LCC program topics include:
  - Markets Overview
  - Transmission Outage Scheduling
  - Transmission Operating Criteria and Limits
  - Emergency Procedures
  - System Restoration
  - Communications
  - eDART

- All generation operators must be PJM certified within 1 year of integration
  - Must work under direct supervision of PJM certified operator prior to certification
- Market Operations Center (MOC) program is designed to
  - Provide a basic level of knowledge on topics critical to gen dispatch in PJM
  - Help prepare gen operators for PJM certification exam
  - Prepare traders and schedulers for participation in PJM markets
- MOC program qualifies for NERC Continuing Education Hours

- MOC program topics include:
  - Locational Marginal Price
  - Generation Outage Scheduling
  - Generation Control
  - Scheduling Process for Generation
  - Ancillary Service Markets
  - Transactions
  - Emergency Procedures
  - System Restoration
  - Market Settlements
  - Applicable eTools
    - eDART, eDATA, eMKT, eSchedules, OASIS, EES

- Transmission and Generation Operators must also meet PJM training requirements
  - Complete LCC/MOC or Interconnection Training Program (ITP) program within 1 year of integration
  - New operators must complete ITP program within 2 years of integration
    - Defined as operator with less than 2 years of prior experience participating in real time operations before assignment of PJM real time duties
  - ITP program is offered each fall and winter in the area of PJM's campus

- Program designed to provide Load Serving Entities and Marketers with the information necessary to conduct business in PJM
  - Topics include:
    - Locational Marginal Price
    - Financial Transmission Rights
    - Energy Transactions
    - Capacity Obligations and RPM
    - Two-Settlement (Demand Perspective)
    - Market Settlements
    - Applicable eTools
      - eMKT, eFTR, OASIS, EES, eSchedules, eRPM
    - Market Examples

- **Market Settlements 301**
  - Provides details of the market settlements process and the components of a typical PJM invoice. The program describes the various possible charges and credits and review examples on spot market interchange calculations.
- **PJM 101**
  - Introduces participants to PJM's markets and operations models. Includes presentations on the PJM markets and system operations, as well as market settlements, capacity and transmission expansion planning.
- **LMP/FTR 101**
  - Covers definition of LMP, 5-bus model examples, LMP verification & posting process, ARR's, FTR's, allocation and auction process
- **Follow-up one-on-one training, as necessary**
- **Other regularly scheduled training**
  - Includes FTR/ARR annual training, RPM Training, eLRS
  - PJM Training web page: <http://www.pjm.com/training.aspx>

# Operations Integration

# Legal / Regulatory Update

- Additional FERC filings in support of Duke integration
  - Duke Ohio and Duke Kentucky Network Integration Transmission Service and Point-to-Point Transmission Service rates added to the PJM Tariff
  - Duke Zone added to Attachment J of the Tariff

- Additional FERC filings in support of Duke integration, con't
  - Duke Ohio and Duke Kentucky signing the Transmission Owners Agreement
  - Duke Kentucky signing the Operating Agreement
  - Duke Ohio and Duke Kentucky signing the Reliability Assurance Agreement

- Identification and migration of existing service agreements and any related operating procedures
  - Interconnection agreements
  - Load / wires-to-wires agreements
  - Transmission Service Agreements (Firm Point-To-Point and Non-Firm Point-To-Point Transmission Service Agreements)
  - Network Integration Transmission Service Agreements

- Interconnection queue migration from MISO to PJM for projects in MISO queue as of 1/1/2012
- Filing of any additional requests for waiver of PJM Tariff, OA or RAA provisions

# Generator Interconnection Process



# PJM Demand Response

Wholesale Service	Demand Response	Energy Efficiency	Price Responsive Demand *
Capacity	Yes	Yes	Yes? (reduction in forecasted capacity requirement)
Energy	Yes		
Day Ahead Scheduling Reserves (30 min)	Yes		
Synchronized Reserves (10 min)	Yes		
Regulation	Yes		

*Emergency resource* (bracketed to Capacity, Energy, and Day Ahead Scheduling Reserves)

*Economic resource* (bracketed to Day Ahead Scheduling Reserves, Synchronized Reserves, and Regulation)

Price Responsive Demand under discussion in stakeholder process – this may or may not be an option in the future.



**Curtailment Service Provider (CSP):**

*PJM Members that is responsible for demand response activity by the customer.*

**Load Serving Entity (LSE):**

*PJM Member, responsible for supplying the electricity to the customer.*

**Electric Distribution Company (EDC):**

*PJM Member responsible for distribution assets used to distribute the electricity to the customer.*

- **Demand Response Emergency Resource**
  - Capacity resource responsible to reduce load when PJM needs it during an emergency
  - Participate in Capacity market
    - Offer into auction up to 3 years in advance
- **Demand Response Economic Resource**
  - Energy – participate based on economic price signal (Wholesale electricity price – Retail electricity price)
  - Ancillary Services – offer into market, normally on an hour before basis
- **Energy Efficiency Resource (new for 6/1/2012)**
  - Permanent load reduction during peak periods
  - Offer into auction up to 3 years in advance

# Additional Questions