Midwest ISO Resource Adequacy Overview ATC Network Customer Meeting



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Agenda

- Role of Resource Adequacy
- Planning Reserve Margin Requirements
- LSE obligations
- Planning Resource Requirements
  - Interconnection Service Requirements
  - Transmission Service Requirements

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Role of Resource Adequacy

- Resource Adequacy Plans are created to help
  - Ensure reliability, and
  - Promote investment
- Phase I: Implementation of the Energy and Operating Reserves Markets and Balancing Authority Functional Alignment Initiative – completed on January 1, 2010
- Phase II: Focuses on the longer-term reliability needs of the region such as:
  - long-term planning
  - demand side resources
  - long-term FTRs
  - national industry standards that are currently under development

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Determination of Reserve Obligations

- Planning Reserve Margin (PRM) determination
  - LOLE Study
    - LOLE is the expected number of days per year for which available generating capacity is insufficient to serve the daily peak demand (load).
    - One day in ten years or .1 day/year
  - PRM Unforced Capacity
    - 4.50% for planning year June 2010 – May 2011
  - 2010-2011 LOLE Report located at the link below:

    http://www.midwestmarket.org/publish/Document/13b9ea_1265d1d192a_-7b910a48324a

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Planning Reserve Margin

	NON – COINCIDENT LOAD BASED		COINCIDENT LOAD BASED
Basis of PRM	PRM $_{UCAP}$ (%)	PRM $_{LSEIGEN}$ (%)	PRM $_{SYSIGEN}$ (%)
Total PRM 2010-2011	4.5 %	11.94 %	15.4 %

Load Diversity for PY 2010-2011 = 3.00%
System Average $XEFOR_d$ PY 2010-2011 = 6.75 %

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Planning Reserve Margin Requirement (PRMR)

- Establishes the total required Capacity needed for each CPNode

$$PRMR = (Forecasted\ Demand - DR - FRP + FRS) \times (1 + PRM_{UCAP})$$

PRMR = (1,000 MW – 0 – 0 + 0) x (1+ 0.045)

PRMR = 1,045 MW

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LSE RA Obligations

- Submit Forecasted Demand[1] (MW)
  - Inclusive of distribution and transmission losses
  - Monthly for years 1-2 and seasonal for years 3-10
- Submit Energy for Load (MWhr)
  - Monthly for years 1-2 and seasonal for years 3-10
- Submit Demand Forecast Assessment Variables
  - Before the Fact: Demand Forecast Variables
  - After the Fact: Actual Demand Variables
- Designate planning resources to meet monthly demand forecast plus PRM requirements

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[1] Does not get LSE NITS service; for RA purposes only NITS billing may be treated separately under Module B

Caution: Transmission Service Arrangements

- Meeting LSE Obligations on previous slide does not equate to arranging for or maintaining transmission service under Module B of Tariff
- Please refer to NITS Overview material provided for this meeting

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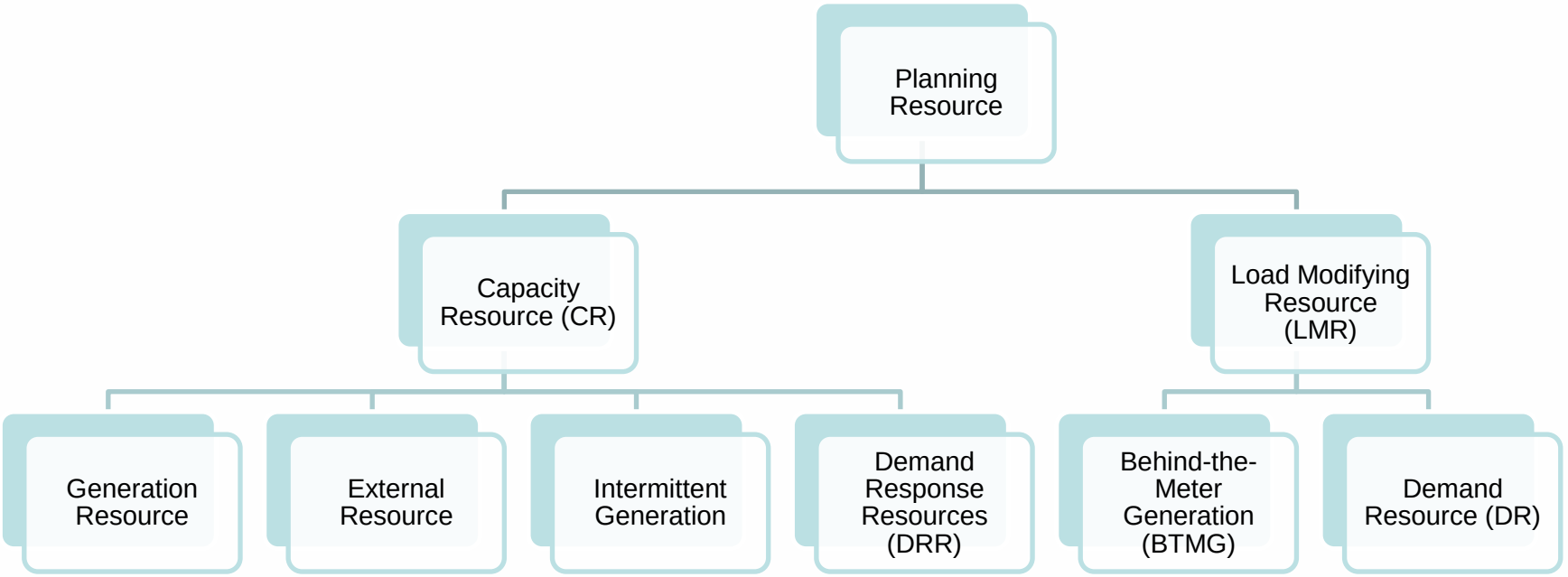
Planning Resource Overview



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CR Qualification Requirements

Planning Resource Type	Qualification Requirements for Capacity Resources			
Resource Type	**Generation Resource & DRR**	**External Resource**	**Intermittent Generation**	
			Wind	**Non-wind**
Ownership/Contractual	Registered in the Commercial Model	Register with Midwest ISO thru the MECT	Registered in the Commercial Model	
Generator Availability Data (GADs)	Submit data if GVTC is >= 10 MW	Submit data if GVTC is >= 10 MW	N/A	
Generator Performance Test (GVTC)	Annual test requirement for generators	Annual test requirement	MISO Wind capacity credit	3 years historical data (June, July, August)
Transmission Requirements	• Network Resource Interconnection Service (NRIS) (Aggregate Deliverability) • Energy Resource Interconnection Service (ERIS) and firm transmission service • Firm Grandfathered Agreement	• Firm transmission service to MISO border • Firm transmission to load	• Network Resource Interconnection Service (NRIS) (Aggregate Deliverability) • Energy Resource Interconnection Service and firm transmission service • Firm Grandfathered Agreement	

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LMR Qualification Requirements

Planning Resource Type	Qualification Requirements for Load Modifying Resources*	
Resource Type	**Demand Resource**	**Behind the Meter Generator**
Ownership/Contractual	Register with the Midwest ISO and Contract	Register with the Midwest ISO
Location	City, State, County, Local Balancing Area	
Minimum notification time	12 hr	
# of interruptions	Maximum of 5 events during the Summer; No limitations outside of summer	
Minimum duration of sustained interruption	4 hrs	
Minimum size	>= 0.1 MW	
Availability Data	State Approval or Past performance	Submit data if GVTC is >= 10 MW (GADs)
Performance Test	Annual test requirement	Annual real power test required
Transmission Requirements	None. Deliverable within the LBA	• Network Resource Interconnection Service (NRIS) (Aggregate Deliverability) • Energy Resource Interconnection Service and firm transmission service • Firm Grandfathered Agreement

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*A demand resource or behind the meter generator that ultimately is registered as a Demand Response Resource in the Energy and Operating Reserve market would be qualified under these same requirements

Resource Adequacy Documentation

- Resource Adequacy BPM
  - Documents > Business Practice Manuals (BPMs) > BPM 011 – Module E – Resource Adequacy
- Module E Capacity Tracking (MECT) Users Guide
  - Documents > Resource Adequacy > Documents > MECT User's Guide 3.3
  - Or link on MECT home screen
- Resource Adequacy Calendar
  - Documents > Resource Adequacy > Documents > Resource Adequacy Calendar

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