MPSC CNF – Integration Group
LOLP Analysis Update
May 12 , 2005

Capacity Need Forum (CNF)

MISO

Topics

- **Input Data Comparison**
- **Preliminary Stand-alone LOLP**
  - **Annual Load Remaining Curves**
    - **METC, ITC, MECS, ATC zone2**
- **Stand-alone system Summary**
- **Imports Modeled**
  - **Annual Load Remaining Curves**
    - **ITC, MECS**
- **“With Support” system Summary**
- **Next Steps**

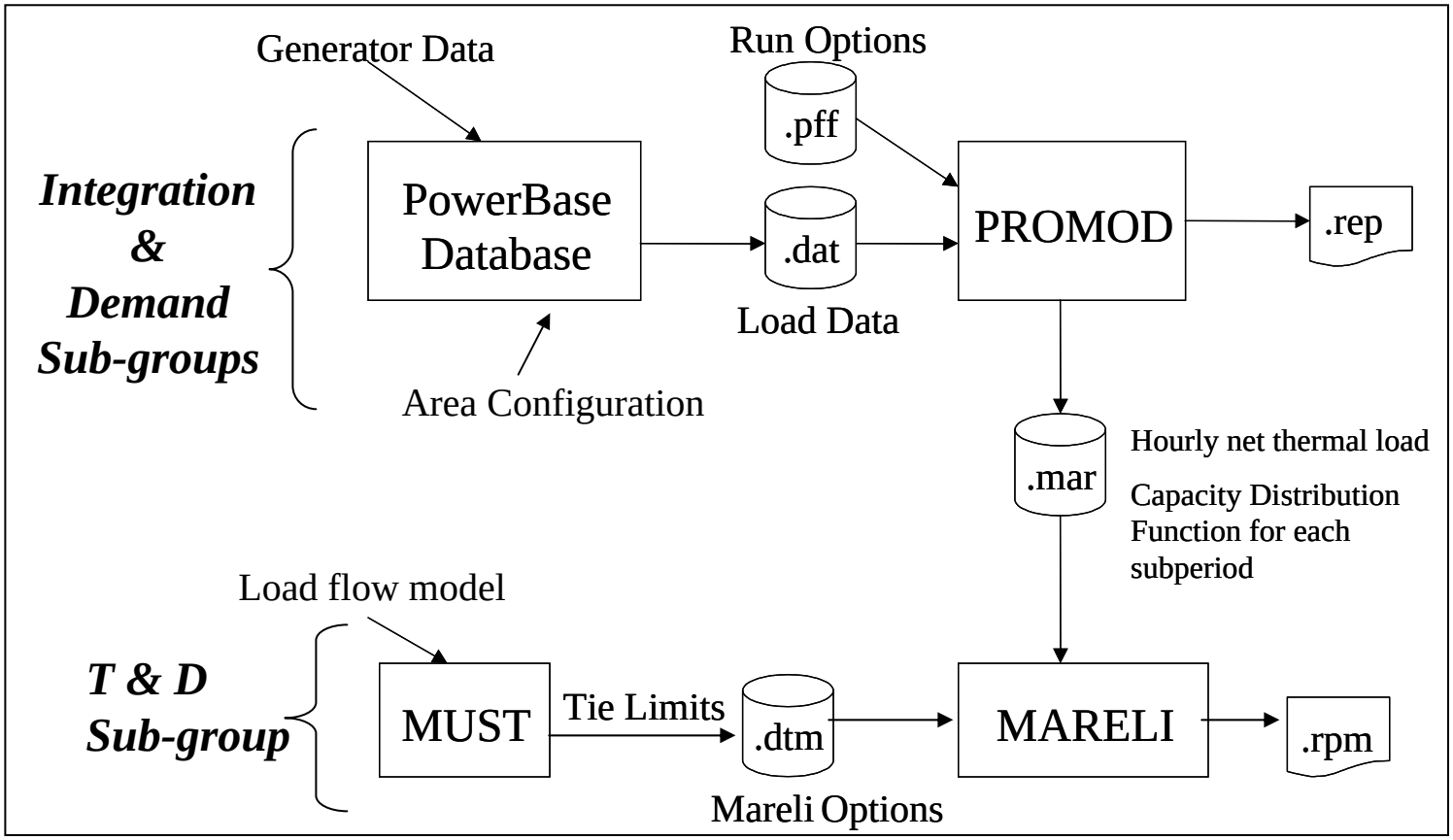
Notes

- **These values are without giving DTE credit for Ludington PS**
- **With 2003 Hourly Load profiles**
- **Maintenance Schedules "optimized"**
- **No Loss Sharing option**
  - **An area can only support when it has surplus**
- **In the model**
  - **ITC = DTE + Wyandotte**
  - **METC = Consumers Energy (includes Midwest Energy, Lower Peninsula Municipals, Alpena Power) + Wolverine Power + Lansing Board**
  - **ATC zone2 = WPS + We Energies + Escanaba + Marquette + Xcel + UPPCO**

Input Data Comparison

		Load & Capability for 2009	
		MISO LD Study	MPSC CNF Study
		(MW)	(MW)
Consumers Energy			
	Loads	10,171	11,212
	Capability	14,674	13,450
	Reserves (MW)	4,503	2,238
	Reserves (%)	44%	20%
Wolverine Power			
	Loads	739	494
	Capability	364	386
	Reserves (MW)	-375	-108
	Reserves (%)	-51%	-22%
Lansing Board			
	Loads	581	526
	Capability	369	532
	Reserves (MW)	-212	6
	Reserves (%)	-37%	1%
METC			
	Loads	11,491	12,232
	Capability	15,407	14,368
	Reserves (MW)	3,916	2,136
	Reserves (%)	34%	17%
ITC			
	Loads	13,595	13,648
	Capability	12,527	12,110
	Reserves (MW)	-1,068	-1,538
	Reserves (%)	-8%	-11%
MECS	Total - Load	25,086	25,880
	Total - Capability	27,934	26,478
	Reserves (MW)	2,848	598
	Reserves (%)	11%	2%

Model Development Flow Chart

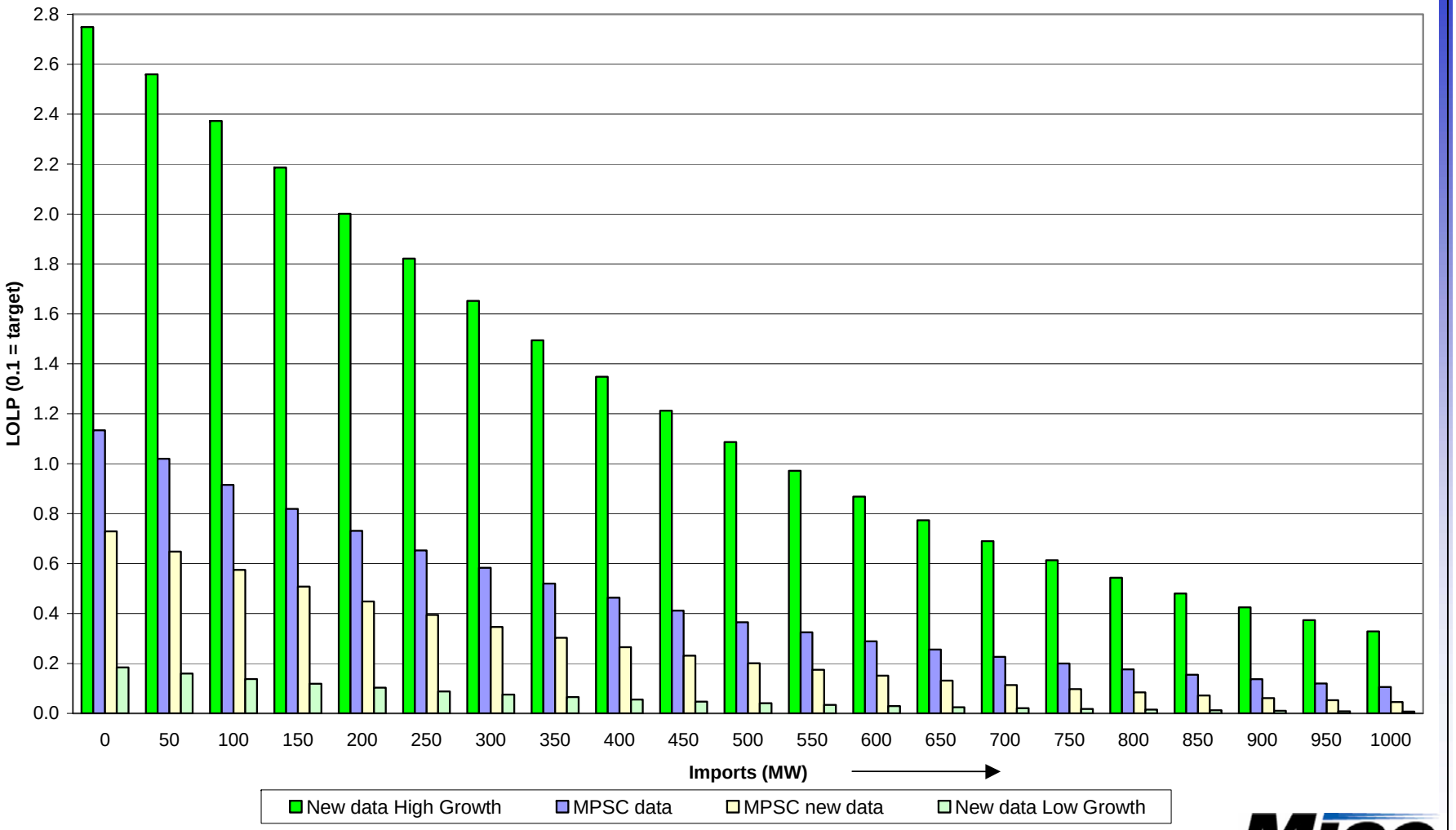


Preliminary stand-alone LOLP

- **METC – 0.73 days/year** (previously 1.13)
- **ITC – 32.3 days/year** (previously 36.61)
- **MECS – 6.3 days/year** (previously 8.4)
- **ATC zone2 – 289 days/year**
- **Note:**
  - **Revised values are after forced outage rate (FOR) changes were made to Consumers and DTE data**
  - **One of the PJM muni/co-op was included in Lower Peninsula forecasts. Revised values will be presented at next meeting.**

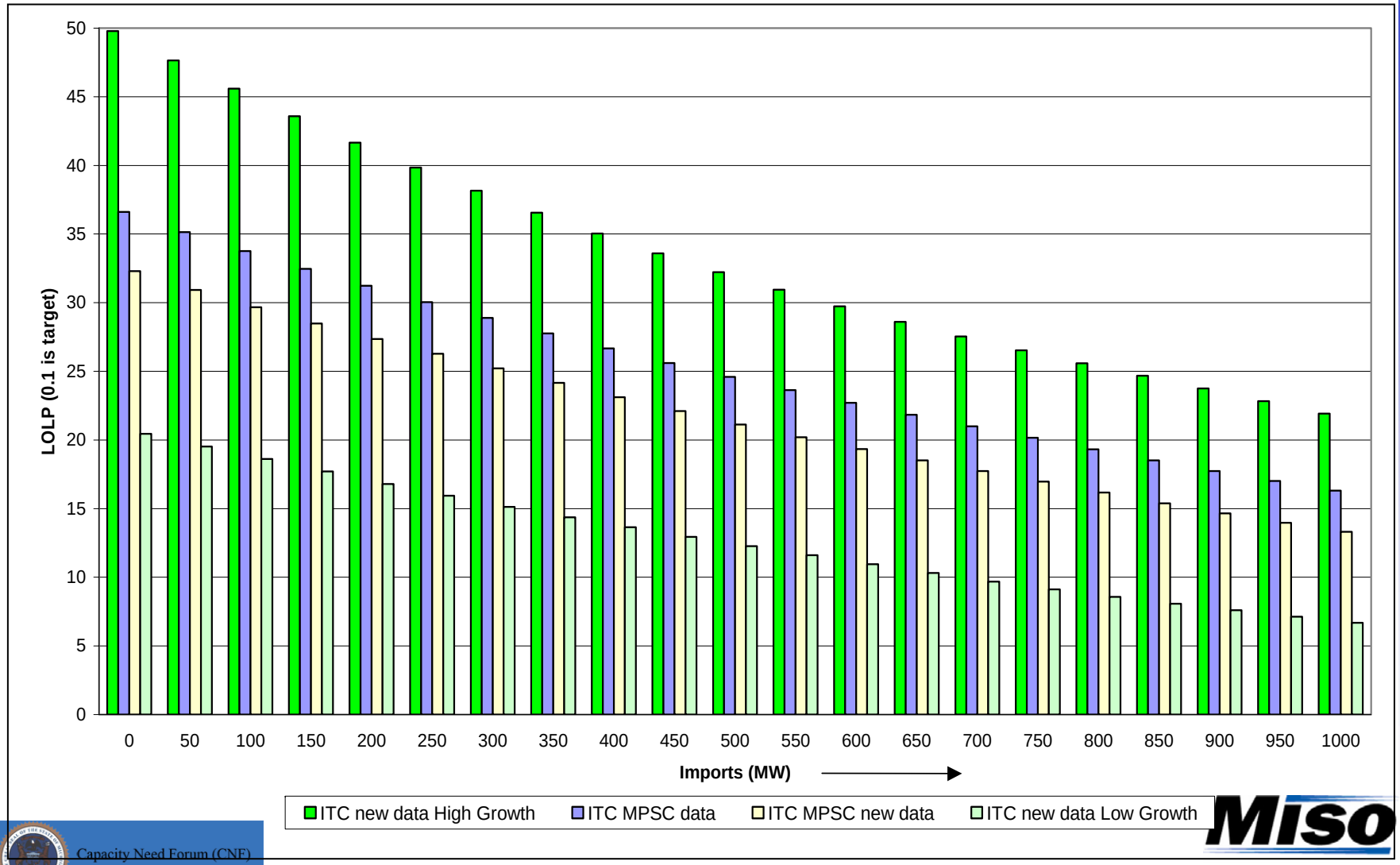
Annual Load Remaining Curve – METC

(on a stand-alone basis)



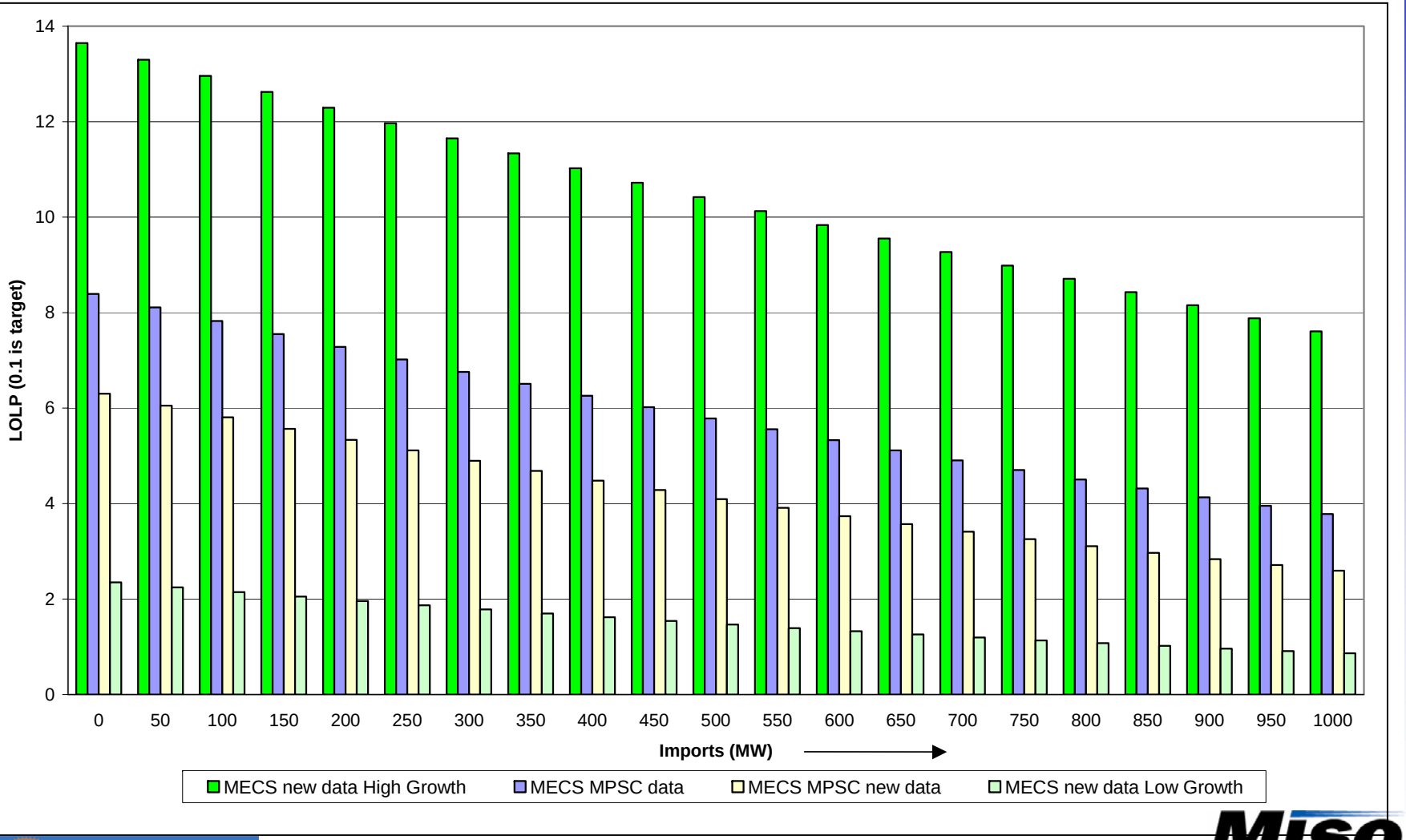
Annual Load Remaining Curve – ITC

(on a stand-alone basis)



Annual Load Remaining Curve – MECS

(on a stand-alone basis)



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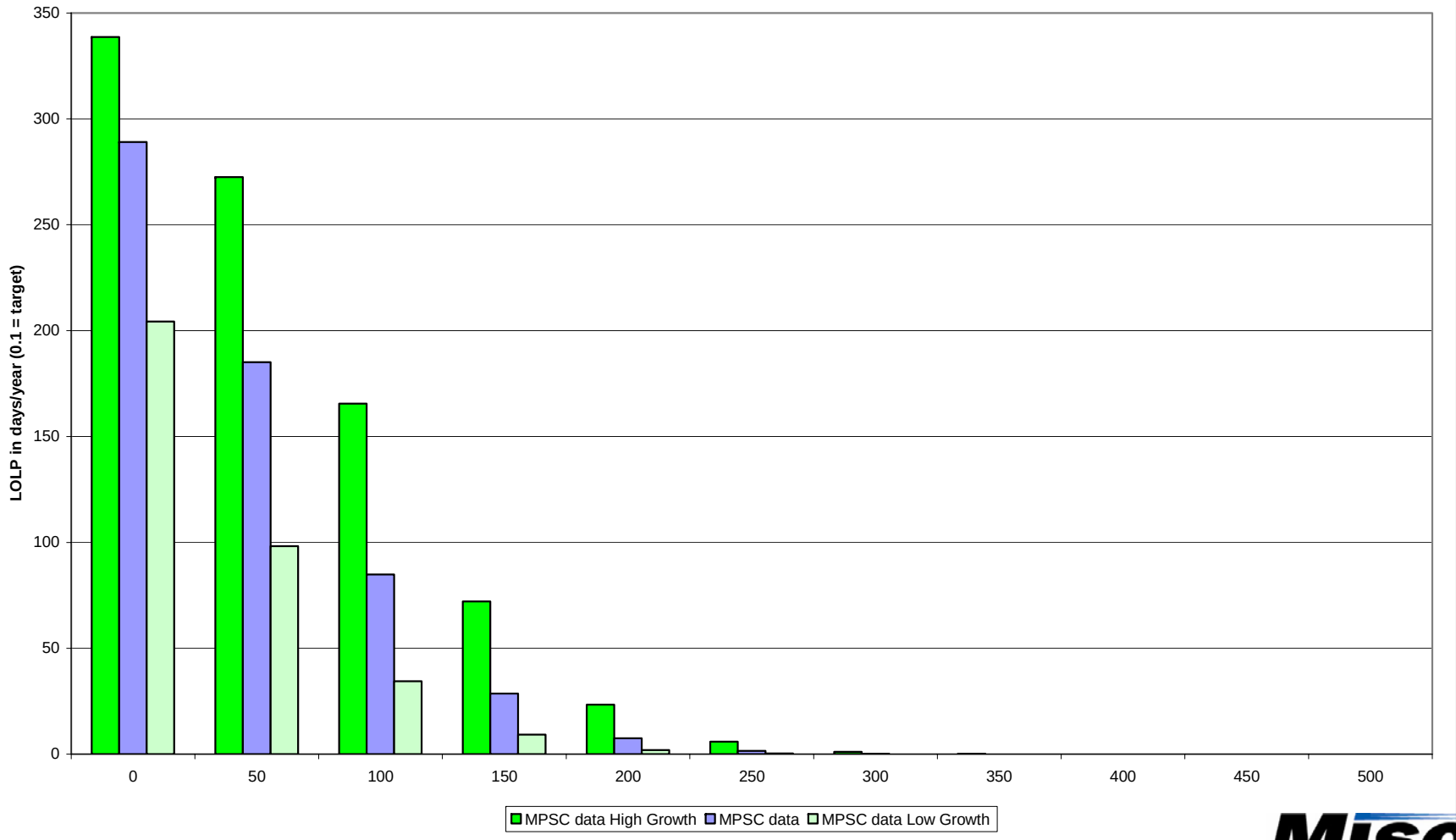
Annual Load Remaining Curve – ATC zone2

(on a stand-alone basis)



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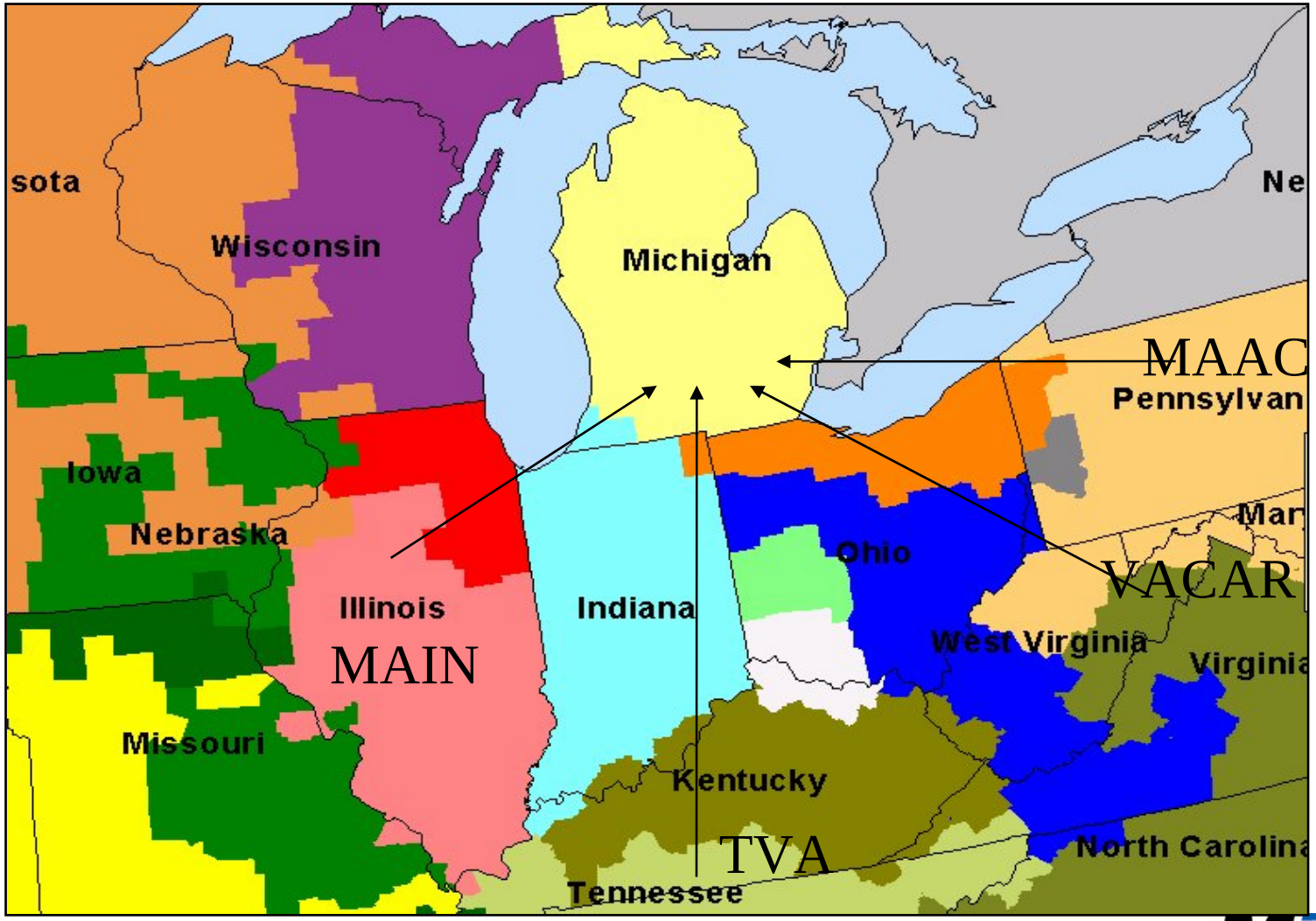
Standalone system - Summary

STAND ALONE SYSTEM						
			Sensitivity Cases			
	BaseCase		High Growth		Low Growth	
	LOLP	Support (MW)	LOLP	Support (MW)	LOLP	Support (MW)
METC	0.7	750	2.8	> 1000	0.2	200
ITC	32.3	> 1000	49.8	> 1000	20.5	> 1000
MECS	6.3	> 1000	2.8	> 1000	2.3	> 1000
ATC zone2	289.1	315	338.6	355	204.3	275

Notes for “with support” values

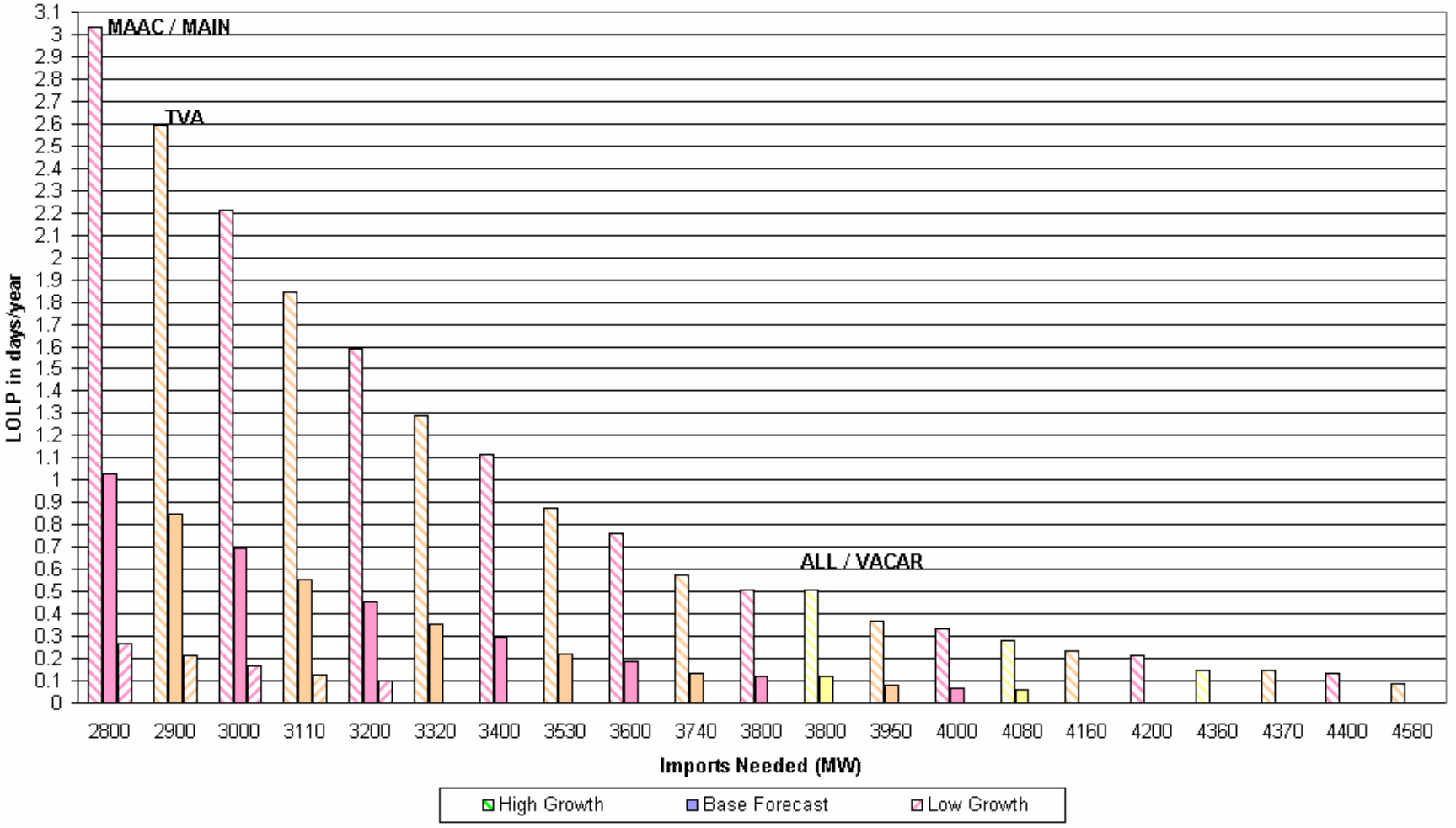
- **The import values correspond to March 8 results on the T&D web page**
- **Assumes IMO PAR flow is 0 MW**
- **Only “prevailing limits” were considered**

Imports Modeled



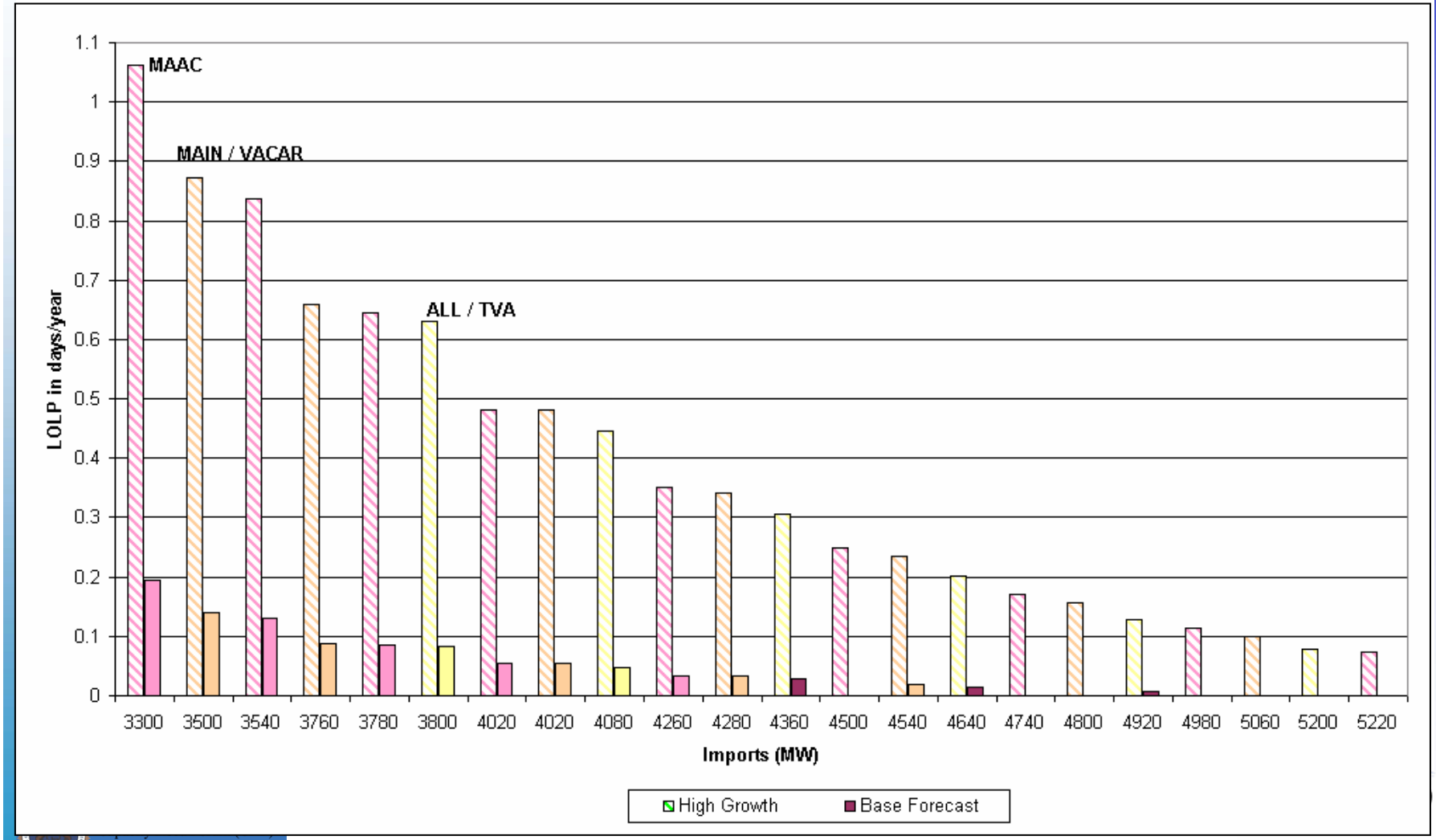
Annual Load Remaining Curve – ITC

(with support basis)



Annual Load Remaining Curve – MECS

(with support basis)



“With Support” system - Summary

			BaseCase		High Growth		Low Growth	
	Imports	Import		Additional Imports		Additional Imports		Additional Imports
Sink	From	Value	LOLP	Needed	LOLP	Needed	LOLP	Needed
ITC	MAAC	2800	1.03	1100	3.03	1700	0.26	400
	MAIN	2800	1.03	1100	3.03	1700	0.26	400
	TVA	2900	0.84	945	2.56	1575	0.21	300
	VACAR	3800	0.11	140	0.5	600	0.02	N/a
	ALL	3800	0.11	140	0.5	600	0.02	N/a
MECS	MAAC	3300	0.19	360	1.06	1700	-	-
	MAIN	3500	0.14	130	0.87	1500	-	-
	TVA	3800	0.08	N/a	0.63	1200	-	-
	VACAR	3500	0.14	130	0.87	1500	-	-
	ALL	3800	0.08	N/a	0.63	1200	-	-

Next Steps

- **Rerun MARELI with revised forecast for Lower Peninsula**