



**COMMITTEE OF THE WHOLE MEETING
AGENDA**

January 12, 2016

**5:30 P.M. – 1201 S. Washington Ave.
Lansing, MI - REO Town Depot
Board of Water & Light Headquarters**

Call to Order

Roll Call

Public Comments on Agenda Items

1. Committee of the Whole Meeting Minutes of 09/08/15.....**TAB 1**

2. IRP Survey Results Update.....**TAB 2**

3. MPPA Alternate Commissioner Resolution.....**TAB 3**

4. Public Comments

5. Other

Adjourn

COMMITTEE OF THE WHOLE
September 8, 2015

The Committee of the Whole of the Lansing Board of Water and Light met at the BWL Headquarters-REO Town Depot located at 1201 S. Washington Ave., Lansing, MI, at 5:30 p.m. on Tuesday, September 8, 2015.

Committee of the Whole Chair Dennis M. Louney called the meeting to order and asked the Corporate Secretary to call the roll.

Present: Commissioners Dennis M. Louney, Anthony McCloud, Tony Mullen, David Price, Ken Ross and Tracy Thomas and Non-Voting Member: Bill Long (Delta Township)

Absent: Commissioner Sandra Zerkle, Non-Voting Commissioners Michael Froh (Meridian Township) and Robert Nelson (East Lansing).

Corporate Secretary declared a quorum.

Public Comments

None

Approval of Minutes

Motion by Commissioner McCloud, Seconded by Commissioner Mullen to approve the Committee of the Whole meeting minutes of July 14, 2015.

Action: Motion Carried

North American Electric Reliability Corporation (NERC) Update

Interim General Manager, Dick Peffley, introduced Robert Lalonde, Manager of Bulk Power, who provided the Commissioners with a North American Electric Reliability Corporation (NERC) update. Mr. Lalonde provided historical information on the formation of NERC and how it led to mandatory compliance with developed standards approved by the Federal Energy Regulatory Commission (FERC). He stated that NERC is an authority assigned with ensuring the reliability of the bulk electric system.

Mr. Lalonde's presentation included information on the responsibilities for the Internal Compliance Program, developed to measure and maintain compliance to standards applicable to the Board of Water & Light, as well as information on upcoming changes to the Critical Infrastructure Protection standards that require greater adherence on the part of the BWL.

Air Regulation Update

Interim General Manager, Dick Peffley, introduced Mark Matus, Manager of Environmental Services, who provided the Committee with an Air Regulation update. Mr. Matus explained that Mercury and Air Toxics Standards (MATS) is a 2011 rule from Environmental Protection Agency (EPA), in which the BWL has been working to become compliant by the deadline of April 2016.

Mr. Matus stated that in June of 2015, the U.S. Supreme Court ruled that the EPA has missed a critical step in the promulgation process of the MATS rule and as such, it has been remanded

back to the Circuit Court of Appeals, who will decide whether to vacate the rule. In the meantime, Mr. Matus stated that BWL would use this time to complete the installation of equipment needed to comply with the MATS rule. Erickson station already has an activated carbon injection (ACI) system, which is a major component for mercury compliance, and the BWL is in the process of installing an ACI system at Eckert station to become MATS compliant with testing of the system expected to begin in January of 2016.

There was a lengthy discussion regarding whether the installation of the said system is reasonable considering Eckert station is nearing its useful life. Mr. Matus stated that it is reasonable to install the system because the Eckert station is needed to manage the BWL's distribution for the next 5 years. Commissioner Ross noted that the outcome of installing the equipment needed for compliance, whether the BWL is actually required to install it by the MATS rule, or not, is that we have cleaner air. Additionally, Mr. Matus explained that with the said system in place, the BWL will achieve 90% removal of mercury when the system is operating.

Community Review Team (CRT) Update

Interim General Manager Dick Peffley stated that he, Chair Price, Commissioner Long and George Stojic, Executive Director of Strategic Planning and Development, met to form a plan of how to wrap up the Community Review Team's (CRT) Recommendations. Mr. Peffley stated that his team suggested to hold a special board meeting in October; and to extend an invitation to the media, customers, General McDaniel and his review team, to attend the meeting with the intent of the BWL highlighting what has been accomplished since the ice storm and how the CRT's recommendations have been implemented with the intent of, or a way to officially conclude the CRT matter.

There was lengthy discussion regarding the CRT matter, with Commissioner Chair Price concluding by stating that the suggested meeting is a great idea and is a very good way to get closure on the CRT matter, that the BWL has done a good job with implementing the CRT recommendations and is the BWL is a different organization today because of it.

Educational training for the Board of Commissioners

Committee of the Whole Chair Louney discussed the subject of exploring different educational options for the Board of Commissioners. He presented the Commissioners with a brochure containing information on Janice Beecher, a professor at Michigan State University (MSU), and a nationally noted authority, who teaches the "Basics of Utility Regulation and Ratemaking" onsite.

Commissioner Chair Price stated that he finds the presented information to be a great idea and stated that this would be something to explore and consider for future educational training.

Community Strategy for outside governmental agencies

Interim General Manager, Dick Peffley, introduced Calvin Jones, Director of Governmental Affairs, and Community Services, who informed the Board of his daily roles and responsibilities with communicating with county, local, state and federal officials. Mr. Jones said that he is aware of their (governmental entities) concerns, and works hard to keep lines of communications open on the latest developments of what the BWL does and vice versa. Mr.

Jones stated that it is his pleasure to stay proactive in his communication with other governmental agencies so that good working relationships are established.

There was a lengthy discussion regarding Commissioner's communication with other respected surrounding government entities. It was suggested the BWL Board visit and rotate meeting in surrounding communities and invite all entities to attend the rotating meetings, as this would provide a platform for them to discuss matters and issues affecting their specific areas.

Committee of the Whole Chair Louney stated that he would discuss this matter with Regional Representatives and draft proposed procedures for communicating. The proposed procedures would then be presented to the entire Board at a future Committee of the Whole meeting.

Joint Work Meeting Resolution BWL/Lansing City Council

Board Chair Price stated that recently the Board of Water & Light Board of Commissioners and Lansing City Council had a great joint meeting. Presented at the joint meeting was a resolution establishing yearly meetings between the two entities. Board Chair Price asked that the Committee of the Whole forward the resolution to the full Board for consideration.

Motion by Commissioner Price, Seconded by Commissioner Thomas to forward the proposed resolution to the full Board for consideration.

Action: Motion Carried

Public Comment

None

Other

Interim General Manager Dick Peffley discussed an email that was sent to the Commissioners regarding the Groesbeck area, where a new light speed is being installed. A customer questioned why the process takes 6 months to complete. Mr. Peffley explained that BWL's procedures require 90 days to design and another 90 days to implement.

Excused Absence

Motion by Commissioner Mullen, Seconded by Commissioner Price, to excuse Commissioners Froh, Nelson and Zerkle from tonight's meeting.

Action: Motion Carried

Adjourn

On Motion by Commissioner Price, Seconded by Commissioner Thomas, the meeting adjourned at 6:58 p.m.

Respectfully Submitted
Denis. M. Louney, Chair
Committee of the Whole



IRP Update for Committee of the Whole
Tuesday, January 12, 2016



Citizen Advisory Committee

- ❖ Review and evaluate BWL Staff's assumptions, forecasts, and analysis
- ❖ Provide opportunity for interested members of the community to offer opinions, information and recommendations
- ❖ Recommend additional analysis by the BWL staff
- ❖ Make recommendations for future resources to the BWL Board



Committee Members

- ❖ Jeff Pillon
- ❖ Rory Neuner
- ❖ Yvonne Young-McConnell
- ❖ Glenn Freeman III
- ❖ Steve Transeth
- ❖ James Butler
- ❖ Derrell Slaughter
- ❖ Mary H. Brady Enerson
- ❖ Dan Voss



Meeting 1: October 1, 2015

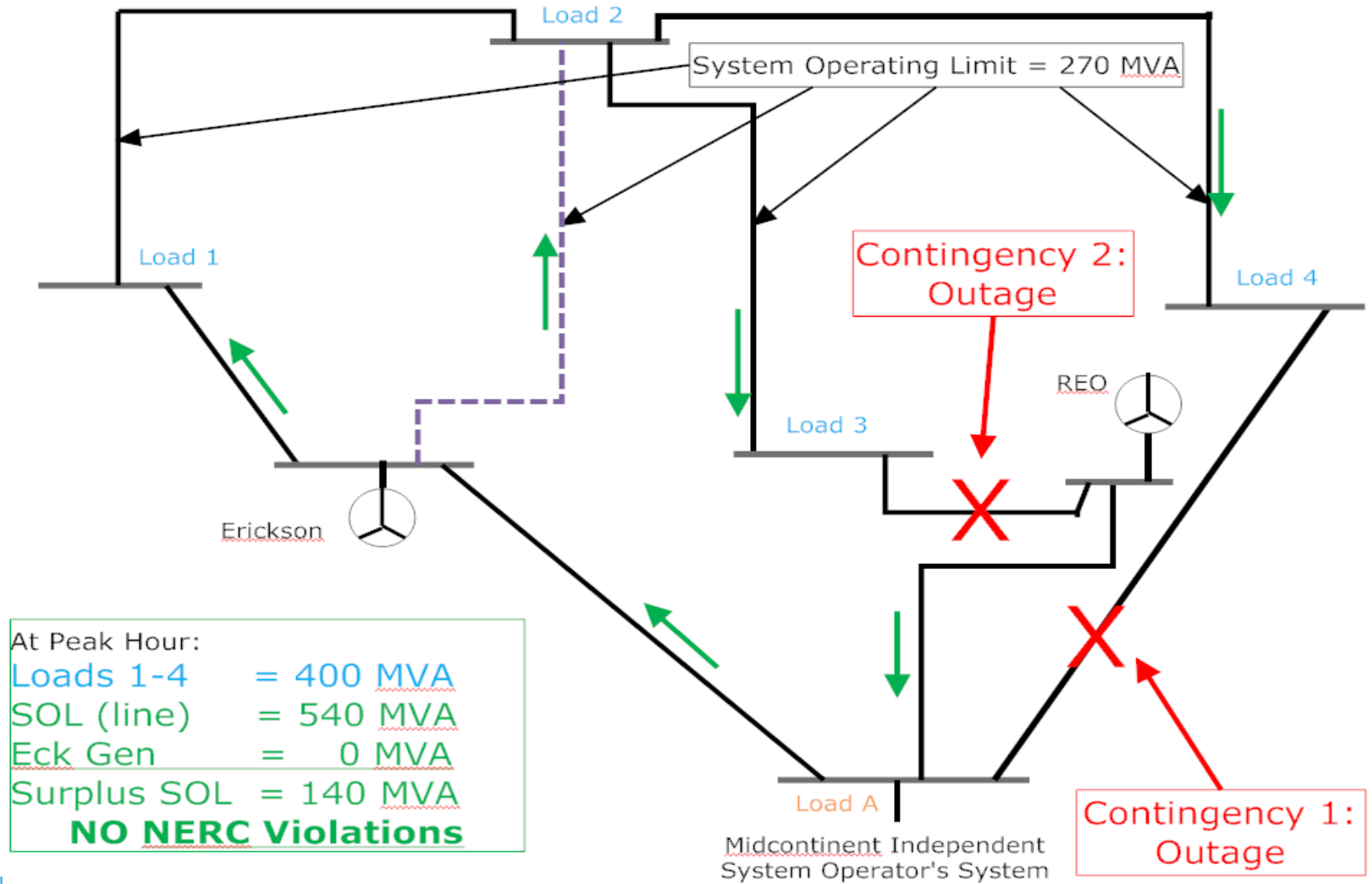
ELECTRIC PRODUCTION, TRANSMISSION AND DISTRIBUTION

| | | |
|--------------|--|--|
| 6:00–6:15 PM | Welcome and introductions | Shanna Draheim, Public Sector Consultants (PSC), George Stojic, Lansing Board of Water and Light (BWL) |
| 6:15–6:30PM | Project goals and overview of IRP | George Stojic, BWL |
| 6:30–7:05 PM | Overview of electric production and history of the BWL's electric system | Jan Nelson, BWL |
| 7:05–7:20 PM | Overview of the Midcontinent Independent System Operator and how BWL fits | Bob LaLonde, BWL |
| 7:20–7:40 PM | Overview of electric distribution system | Dave Bolan, BWL |
| 7:40–7:55 PM | Public comment | Shanna Draheim and Eric Pardini, PSC |
| 7:55–8:00 PM | Wrap-up, next meeting Wednesday, October 21, 2015, at 6 PM, East Lansing Hannah Community Center | Shanna Draheim, PSC |



Representation of BWL's Existing Transmission System

With Two Contingencies (N-1-1) with New Transmission Line



Electric Generation Capacity Need Determination

- 1) Forecast electric energy needs of customers
- 2) Less expected available electric generating capacity
- 3) Equals projected need for additional electric generating capacity
- 4) Develop best plan to meet need:
 - ❖ Existing assets
 - ❖ New supply-side options
 - ❖ New demand-side options
 - ❖ Identify future risks and compliance standards
 - ❖ Evaluate costs and risk tradeoffs of various resource plans through sensitivities and scenarios

Meeting 2: October 21, 2015

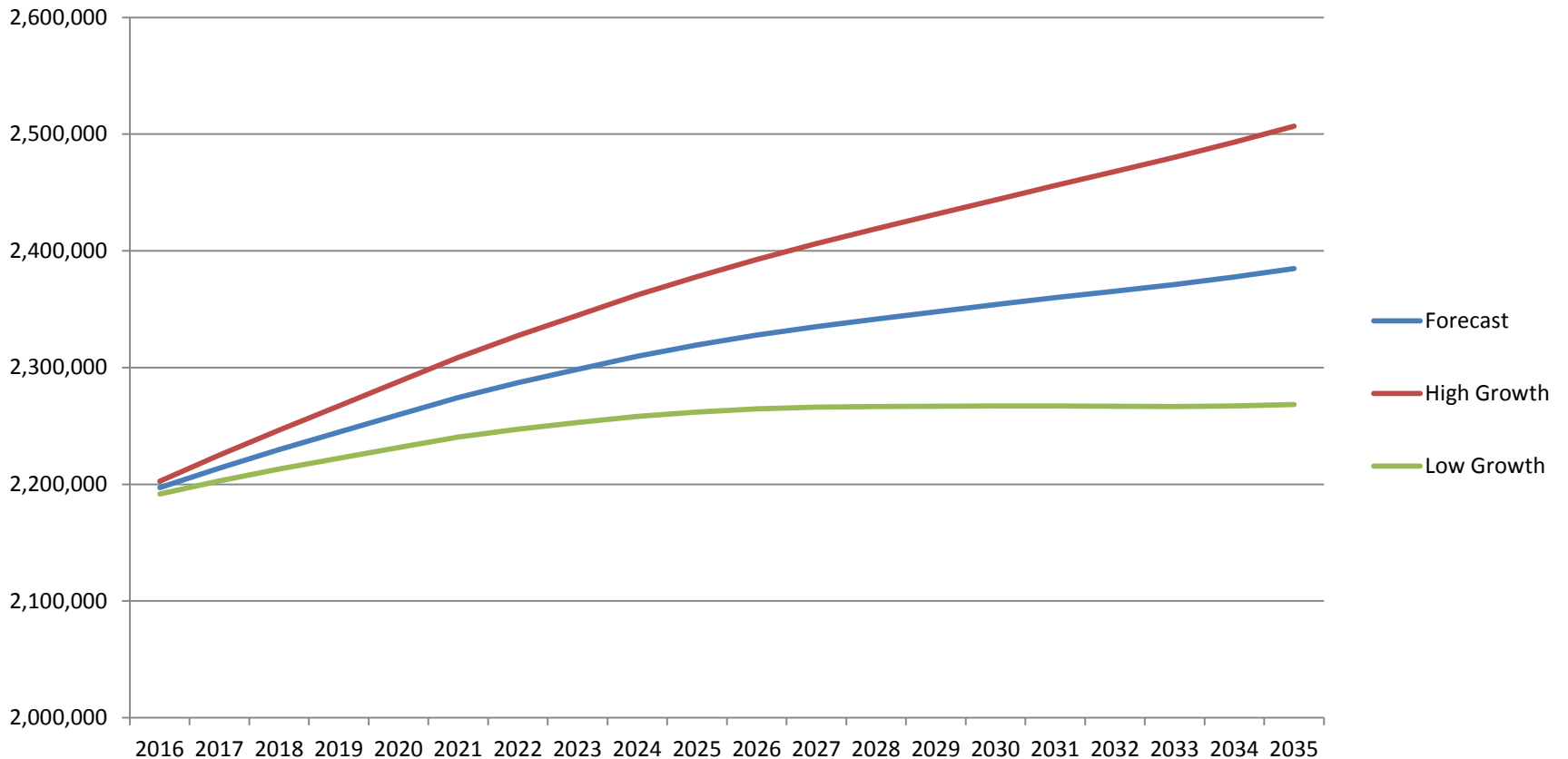
FORECASTING RESOURCE NEEDS

| | | |
|--------------|---|---|
| 6:00–6:15 PM | Welcome and introductions | Steve Transeth, Chair of Citizen Advisory Committee (CAC), Eric Pardini, Public Sector Consultants (PSC), Nathan Triplett, City of East Lansing |
| 6:15-6:30PM | Historical energy sales | George Stojic, Lansing Board of Water and Light (BWL) |
| 6:30–7:00PM | Load forecast and capacity requirements – MISO and BWL | Bob LaLonde, BWL |
| 7:00–7:15 PM | Load and resource balance requirements | Steve Brennan, BWL |
| 7:15–7:35 PM | Natural gas market outlook | Tom Sapp, Fellon- McCord |
| 7:35–7:50 PM | Fuel forecasts Market energy and capacity prices | Steve Brennan, BWL |
| 7:50–7:55 PM | Public comment | Julie Metty Bennett and Eric Pardini, PSC |
| 7:55–8:00 PM | Wrap-up, next meeting Wednesday, November 12, 2015, at 6 PM, Gier Community Center, Lansing | Eric Pardini, PSC |

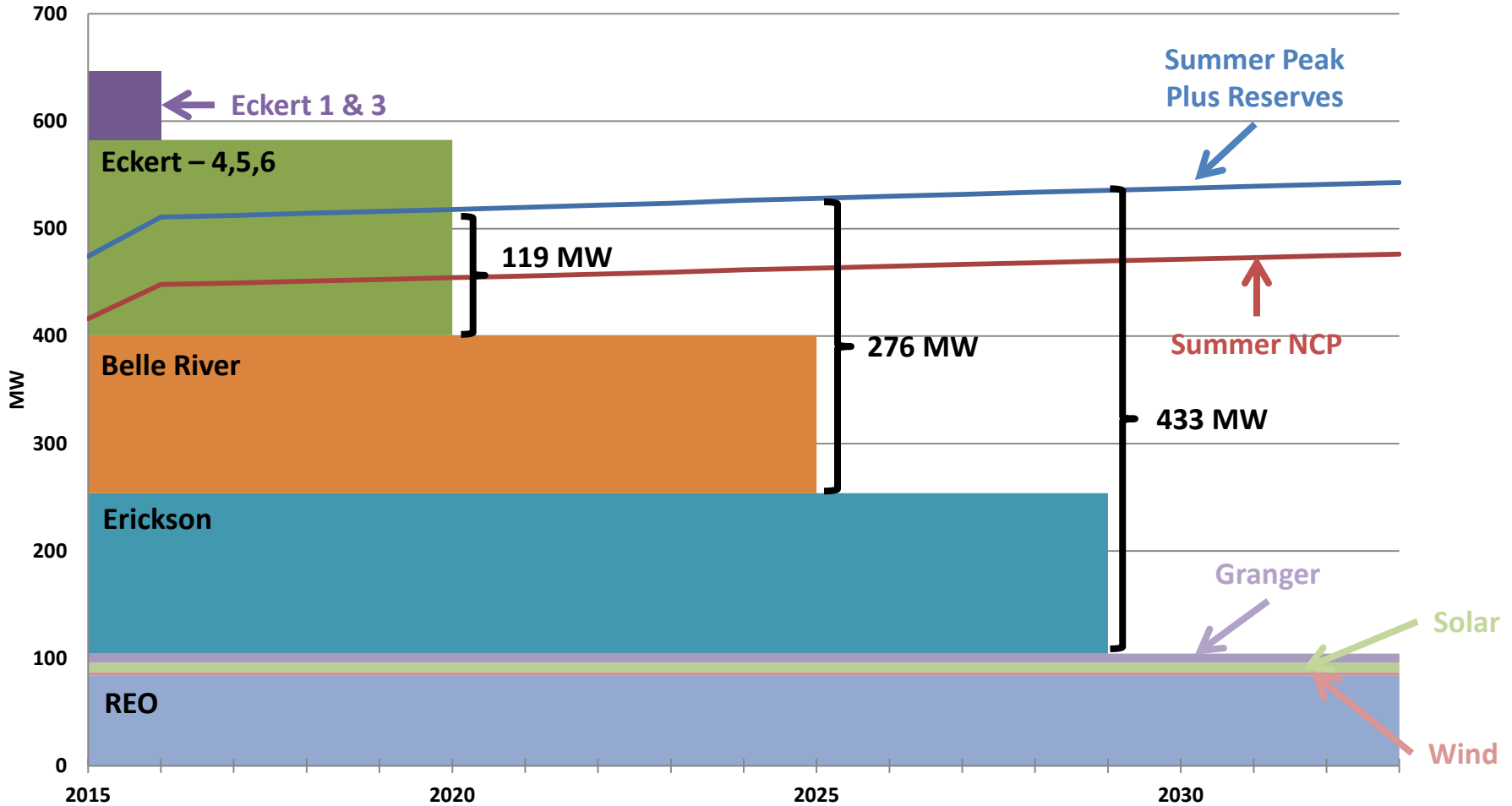


Load Forecast

Annual Generation Requirements (MWH)



Deficiency Forecast



Meeting 3: November 12, 2015

RESOURCE ALTERNATIVES – SUPPLY SIDE

| | | |
|--------------|---|---|
| 6:00–6:10 PM | Welcome and introductions | Steve Transeth, Committee co-chair; Mary Brady Enerson, Committee co-chair; Shanna Draheim, Public Sector Consultants (PSC) |
| 6:10–6:25 PM | Overview of previous meetings | George Stojic, Lansing Board of Water & Light (BWL) |
| 6:25–6:40 PM | Stakeholder Presentation | Linda Vail, Ingham County Health Department |
| 6:40–7:00 PM | REO combined cycle gas plant | Roberto Hodge, BWL |
| 7:00–7:10 PM | Existing resource conditions | Steve Brennan, BWL |
| 7:10–7:50 PM | New resource options and cost estimates | Barr Engineering |
| 7:50–7:55 PM | Public comment | Shanna Draheim, PSC |
| 7:55–8:00 PM | Wrap-up, next meeting Wednesday, December 9, 2015, at 6 PM, Fenner Nature Center, Lansing | Steve Transeth, Committee co-chair; Mary Brady Enerson, Committee co-chair |



Thermal Resources—Gas Turbine

| | | 12 MW GT | 50 MW GT | 100 MW GT | 150 MW CCGT | 300 MW CCGT | 400 MW CCGT |
|--|--------------|--------------------------|--------------------------|--------------------------|----------------------------|----------------------------|----------------------------|
| Unit Characteristics | Units | Simple Cycle Gas Turbine | Simple Cycle Gas Turbine | Simple Cycle Gas Turbine | Combined Cycle Gas Turbine | Combined Cycle Gas Turbine | Combined Cycle Gas Turbine |
| Online lead time | Months | 15 | 15 | 18 | 30 | 30 | 36 |
| Summer Capacity/ Monthly Production | MW; kWh | 10 | 43 | 85 | 128 | 255 | 340 |
| Winter Capacity/ Monthly Production | MW; kWh | 12 | 50 | 100 | 150 | 300 | 400 |
| Minimum Load | MW | 6 | 25 | 50 | 90 | 180 | 240 |
| Full Load Heat Rate | HHV, Btu/kWh | 10,800 | 9,500 | 8,700 | 7,300 | 6,600 | 6,500 |
| Minimum Load Heat Rate | HHV, Btu/kWh | 12,420 | 10,925 | 10,005 | 8,395 | 7,590 | 7,475 |
| SO2 Emission Rate | (lb/MMBtu) | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 |
| NOX Emission Rate | (lb/MMBtu) | 0.0552 | 0.0919 | 0.0919 | 0.0073 | 0.0073 | 0.0073 |
| CO2 Emission Rate | (lb/MMBtu) | 117 | 117 | 117 | 117 | 117 | 117 |
| Fixed O&M | 2015\$/kW-yr | \$10.00 | \$10.00 | \$10.00 | \$25.83 | \$15.90 | \$13.00 |
| Fixed O&M | 2015\$/yr | \$120,000 | \$500,000 | \$1,000,000 | \$3,874,474 | \$4,770,037 | \$5,200,000 |
| Variable O&M | 2015\$/MWh | \$73.10 | \$67.90 | \$64.70 | \$32.87 | \$30.07 | \$29.67 |
| Variable O&M (less fuel) | 2015\$/MWh | \$29.90 | \$29.90 | \$29.90 | \$3.67 | \$3.67 | \$3.67 |
| Forced Outage Rate | % | 3.0% | 3.0% | 3.0% | 4.0% | 4.0% | 4.0% |
| Maintenance Outage Rate (MOR) | % | 5.0% | 5.0% | 5.0% | 6.0% | 6.0% | 6.0% |
| Overnight Construction Cost | 2015\$/kW | \$1,400 | \$1,100 | \$1,050 | \$1,500 | \$1,300 | \$1,200 |
| Overnight Construction Cost | 2015\$ | \$16,800,000 | \$55,000,000 | \$105,000,000 | \$225,000,000 | \$390,000,000 | \$480,000,000 |

Renewable, Distributed Generation, and Future Resources

| | | 10 MW PV | 20 MW Wind | 11.2 MW Distributed Generation | 1 MW Battery | 1 MW H2 Fuel Cell | 1 MW H2 Fuel Cell |
|--|--------------|--------------------|---------------|--------------------------------|-------------------------------|-------------------|-------------------|
| Unit Characteristics | Units | Photovoltaic Solar | Wind Turbine | Micro-Turbine | Utility Scale Battery Storage | Energy Production | Energy Storage |
| Online lead time | Months | 24 | 36 | 15 | 21 | 18 | 18 |
| Summer Capacity/ Monthly Production | MW; kWh | 10; 1,300,000 | 20; 2,619,900 | 11.2 | 1.0 | 1.0 | 1.0 |
| Winter Capacity/ Monthly Production | MW; kWh | 10; 550,000 | 20; 6,184,155 | 11.2 | 1.0 | 1.0 | 1.0 |
| Minimum Load | MW | NA | NA | NA | NA | NA | NA |
| Full Load Heat Rate | HHV, Btu/kWh | NA | NA | 11,433 | NA | 9,500 | NA |
| Minimum Load Heat Rate | HHV, Btu/kWh | NA | NA | NA | NA | NA | NA |
| SO2 Emission Rate | (lb/MMBtu) | NA | NA | 0.0006 | NA | 0.00013 | NA |
| NOX Emission Rate | (lb/MMBtu) | NA | NA | 0.0331 | NA | 0.013 | NA |
| CO2 Emission Rate | (lb/MMBtu) | NA | NA | 117 | NA | 130 | NA |
| Fixed O&M | 2015\$/kW-yr | \$24.68 | \$39.53 | NA | \$3.00 | \$330 | \$400 |
| Fixed O&M | 2015\$/yr | \$250,000 | \$800,000 | NA | \$3,000 | \$330,000 | \$400,000 |
| Variable O&M | 2015\$/MWh | NA | NA | \$63.73 | \$7.00 | \$38.00 | NA |
| Variable O&M (less fuel) | 2015\$/MWh | NA | NA | \$18.00 | NA | NA | NA |
| Forced Outage Rate | % | 0.0% | 5.0% | 1.0% | 2.0% | 1.0% | 1.0% |
| Maintenance Outage Rate (MOR) | % | 2.0% | 0.6% | 2.0% | 0.6% | 1.0% | 1.0% |
| Overnight Construction Cost | 2015\$/kW | \$3,000 | \$1,980 | \$2,500 | \$3,300 | \$7,108 | \$2000 - \$6000 |
| Overnight Construction Cost | 2015\$ | \$30,000,000 | \$39,600,000 | \$28,000,000 | \$3,300,000 | \$7,108,000 | \$4,000,000 |

Meeting 4: December 9, 2015

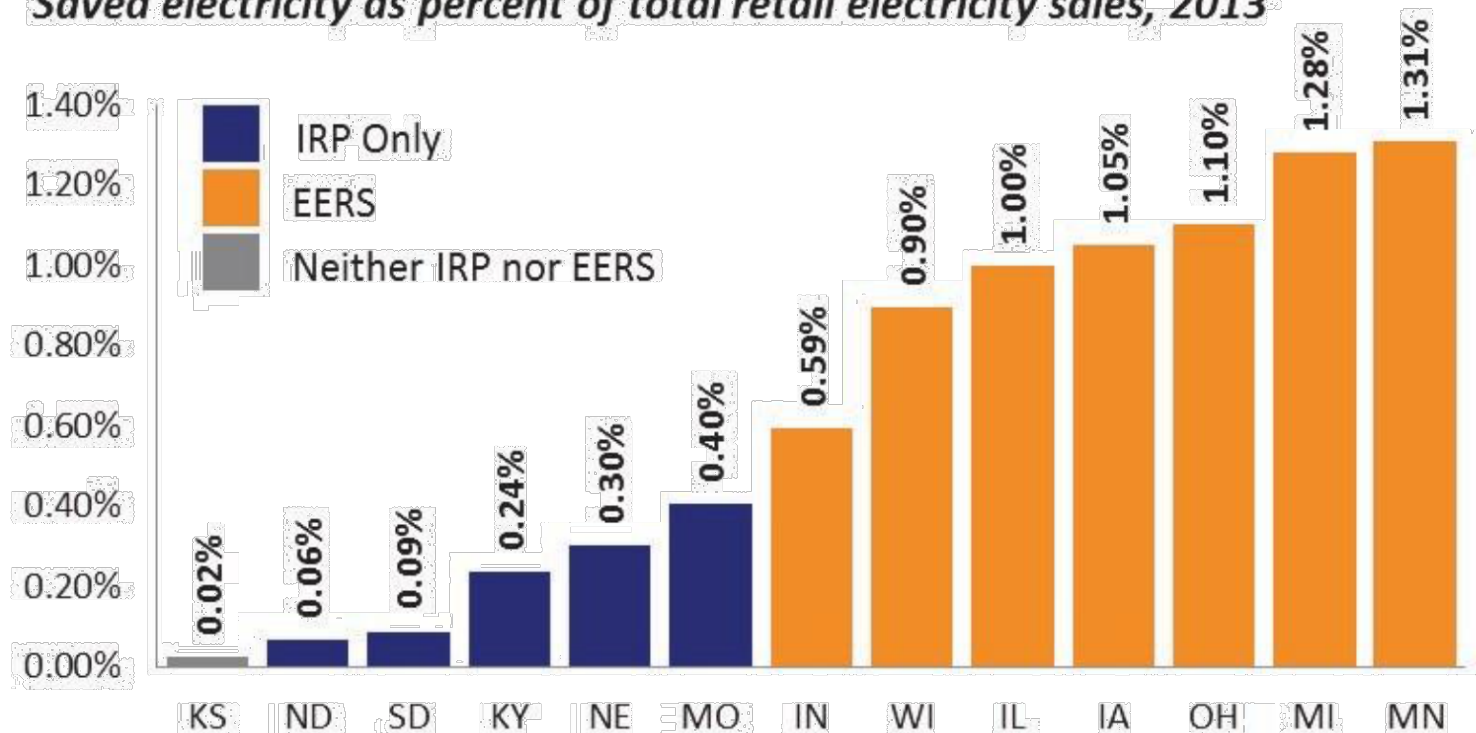
RESOURCE ALTERNATIVES – DISTRIBUTED GENERATION, ENERGY EFFICIENCY AND DEMAND MANAGEMENT

| | | |
|--------------|---|---|
| 6:00–6:05 PM | Welcome and introductions | Steve Transeth, Committee co-chair; Mary Brady Enerson, Committee co-chair; Shanna Draheim, Public Sector Consultants (PSC) |
| 6:05–6:15 PM | Overview of previous meetings | George Stojic, Lansing Board of Water & Light (BWL) |
| 6:15–6:35 PM | Energy efficiency | Rick Morgan, Morgan Marketing Partners |
| 6:35–6:50 PM | Hometown Energy Savers | Sue Warren, BWL |
| 6:50–7:05 PM | Distributed generation | John Sarver, Great Lakes Renewable Energy Association |
| 7:05–7:25 PM | Advanced Metering Infrastructure (AMI) | James Douglas, Util-Assist |
| 7:25–7:45 PM | Direct load control | Ted Kuhn, Customized Energy Solutions |
| 7:45–7:55 PM | Stakeholder presentation | Tom Stanton |
| 7:55–8:00 PM | Public comment | Shanna Draheim, PSC |
| 8:00 PM | Wrap-up, next meeting Wednesday, January 13, 2016, at 6 PM, LCC West Campus | Steve Transeth, Committee co-chair; Mary Brady Enerson, Committee co-chair |

How does MI compare to other States?

Energy Efficiency in Midwest States

Saved electricity as percent of total retail electricity sales, 2013



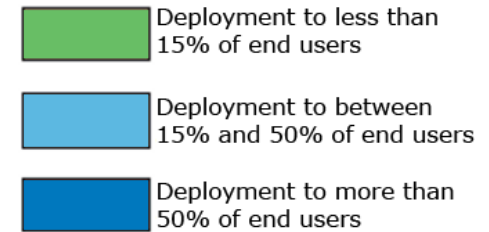
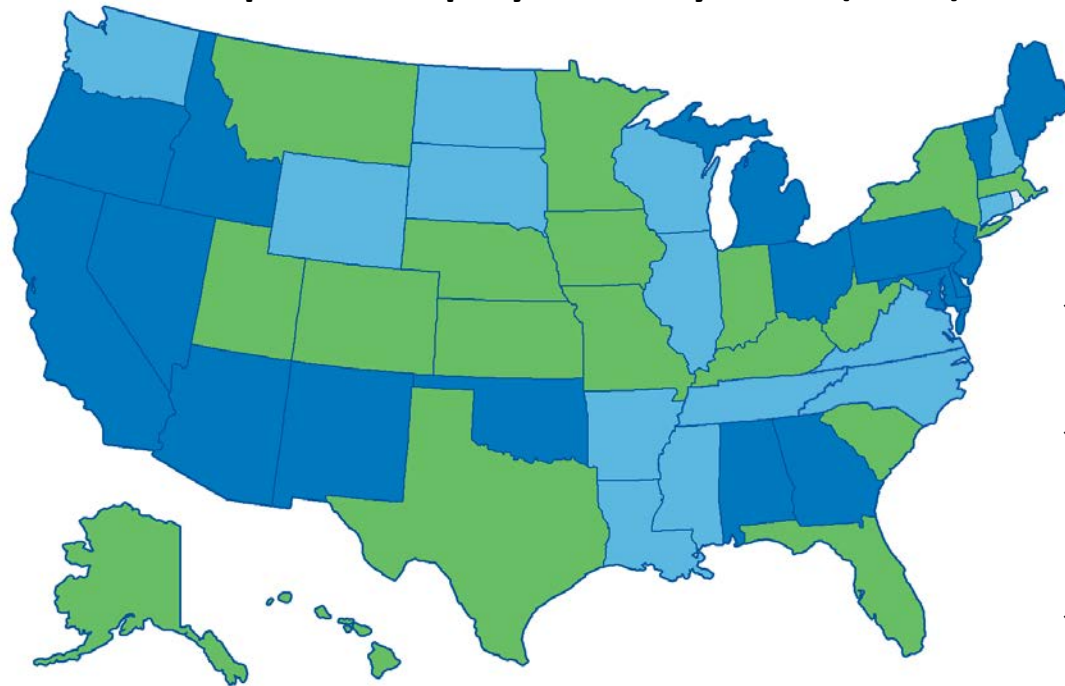
sources: MEEA, 2015; EIA, 2015

Hometown Energy Savers Program: MWH Savings 2009-2014

| Program Year | Total Savings Required MWH | Actual Savings Achieved | Percentage of Goal |
|--------------|----------------------------|-------------------------|--------------------|
| 2008-09 | 6,831 | 6,971 | 102% |
| 2010 | 11,306 | 11,524 | 102% |
| 2011 | 16,236 | 17,587 | 108% |
| 2012 | 21,581 | 23,147 | 107% |
| 2013 | 22,230 | 26,757 | 120% |
| 2014 | 22,460 | 23,094 | 103% |

AMI Deployments in the U.S.

Expected Deployments by State (2015)



- ❖ 30 of the largest utilities have fully deployed AMI
- ❖ California, Texas, and Florida installed AMI devices in over 50% of all households.
- ❖ EY (Ernst & Young) predicts steady progress, reaching 91% penetration by 2022.
- ❖ AMI devices are becoming the norm, not the exception.
- ❖ Nearly 50 million AMI devices were deployed as of July 2014 (43% of the country).

Deployments in the Lansing Area

- ❖ BWL is in the process of procuring an (AMI) system.
- ❖ Phase 1 deployment will start in the Spring of 2016.

| | Meters | |
|--------|----------|-------|
| | Electric | Water |
| Year 1 | 2800 | 1700 |
| Year 2 | 17279 | 8934 |
| Year 3 | 20000 | 12000 |
| Year 4 | 20100 | 12650 |
| Year 5 | 20100 | 12650 |
| Year 6 | 17000 | 10000 |
| Totals | 97279 | 57934 |

Examples of Demand Side Management

❖ Direct Load Control (DLC)

- ❖ Utility exerts some form of control over the end-user's ability to consume energy

 - ❖ Examples: water-heater controls, air-conditioning cycling

- ❖ Provides a benefit to the system by lowering the peak demand, which reduces the need for capacity

 - ❖ Energy, as opposed to capacity, is typically not reduced because the foregone usage of the equipment is simply postponed

❖ Time-of-Use Rates

- ❖ Consumers reduce consumption, but response less certain

- ❖ Measurement issues (statistical studies); compare to DLC

Upcoming CAC Schedule

❖ Meeting 5: January 13, 2016

- ❖ Clean Power Plan (CO₂ emissions regulations)
- ❖ Managing Future Risk with Scenarios and Sensitivities
- ❖ Public Survey results

❖ Meetings 6 & 7

- ❖ Citizens Advisory Committee determines need for additional meetings
- ❖ Public Sector Consultants to facilitate development of recommendation and preparation of report

Communications with Customers

- ❖ Maintain a website at www.lansingenergytomorrow.com
 - ❖ Description of “Lansing Energy Tomorrow”
 - ❖ Schedule of meetings
 - ❖ Presentations
 - ❖ Recordings of meeting
- ❖ Press releases
- ❖ Coverage from local media

Amending Appointments to the Michigan Public Power Agency

WHEREAS, George Stojic is the Michigan Public Power Agency (MPPA) Commissioner on behalf of the Lansing Board of Water & Light (BWL), along with Robert Lalonde and Lori Pung, who serve as First and Second Alternate Commissioners, respectively; and

WHEREAS, the Second Alternate, Lori Pung has been promoted to the position of Manager of General Accounting; and

WHEREAS, it is appropriate and in the best interest of the BWL to name a replacement for the Second Alternate MPPA Commissioner position.

NOW, BE IT RESOLVED, that George Stojic will remain as the MPPA Commissioner on behalf of the BWL, along with Robert Lalonde as the First Alternate Commissioner.

FURTHER RESOLVED, that Constance Carantza is named as the BWL's Second Alternate MPPA Commissioner.