

AGENDA
CITY OF CHARLEVOIX CITY COUNCIL WORK SESSION
Monday, May 6, 2019- 5:00 PM
Council Chambers, 210 State Street, Charlevoix, MI

- 1. Pledge of Allegiance**
- 2. Roll Call**
- 3. Presentations**
 - A. Power Supply Presentation
- 4. Adjourn**

The City of Charlevoix will provide necessary reasonable auxiliary aids and services, such as signers for the hearing impaired and audio tapes of printed materials being considered at the meeting, to individuals with disabilities at the meeting upon one weeks' notice to the City of Charlevoix. Individuals with disabilities requiring auxiliary aids or services should contact the City of Charlevoix Clerk's Office in writing or calling the following: City Clerk, 210 State Street, Charlevoix, MI 49720 (231) 547-3250.

CHARLEVOIX CITY COUNCIL

Presentations

TITLE: Power Supply Presentation

DATE: May 6, 2019

PRESENTED BY: Don Swem, Electric Department; Patrick Bowland, MPPA GM

BACKGROUND:

Patrick Bowland from the Michigan Public Power Agency (MPPA) is here today to discuss the future of the City's power supplies. Patrick has a vast amount of experience in the power generation industry. He was hired as MPPA's Chief Executive Officer and General Manager several years ago. Before that he worked at Exelon Corporation (formerly Integrys Energy Services) where he served as its Managing Director of Power Supply and Origination. Patrick is a subject matter expert in wholesale power markets used to support retail business, reduce financial exposures and enhance the customer experience. Patrick has worked in the competitive energy business for over twenty years and holds a Bachelor of Science in Industrial Distribution and an MBA from Wayne State University.

The City Electric System is facing challenges to remain economical and reliable in the future while at the same time meeting various new State Laws and Requirements. On top of this are rapidly changing customer expectations, and the constant push toward sustainability. In the past we invested in large coal plants to meet our basic power needs but that has all been changing drastically over the years. Coal is on the way out and renewables are being pushed at every opportunity. One of the challenges for us is to not only work towards a sustainable future but work towards a practical and economical future as well.

ATTACHMENTS:

- ▣ Presentation



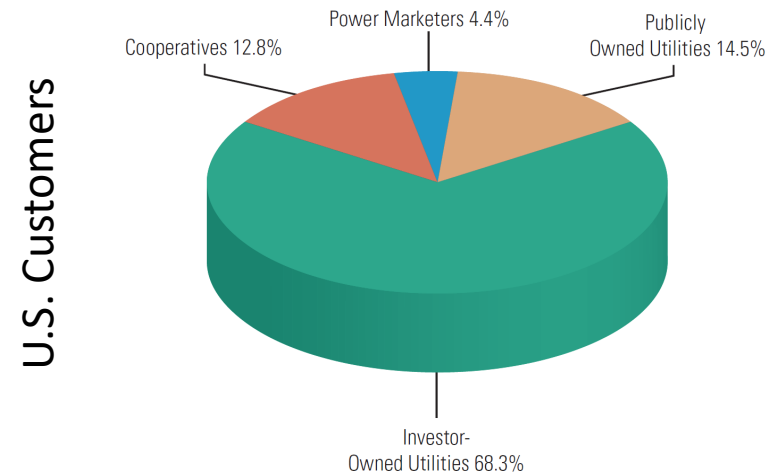
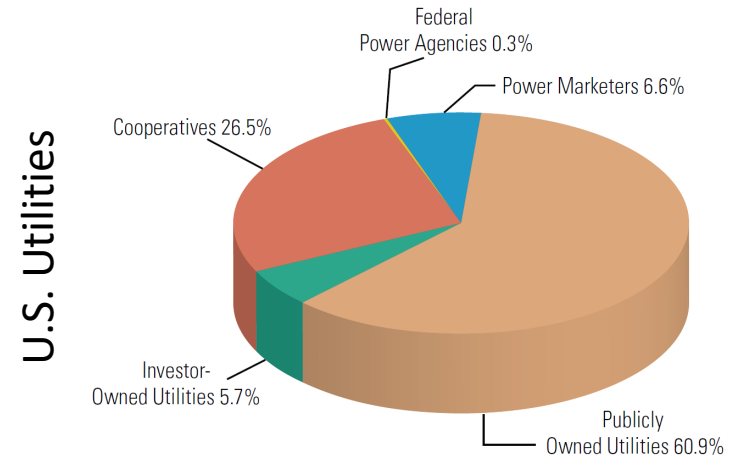
Michigan Public Power Agency

Delivering Value Added Energy Solutions and Services

Charlevoix City Council Meeting
May 6, 2019

Public Power – United States

- Approximately 2,000 Public Power Entities in the United States
- Represent roughly 60% of Electric Utilities and 15% of the customers in United States
- Majority are Members of roughly 80 Power Supply consortiums (largely Joint Action)
- *JAAAs pool resources to gain efficiency, share costs, obtain economies of scale and focus expertise*
- *JAAAs like MPPA are an extension of the local utility*



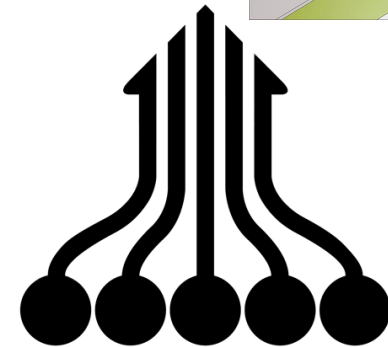
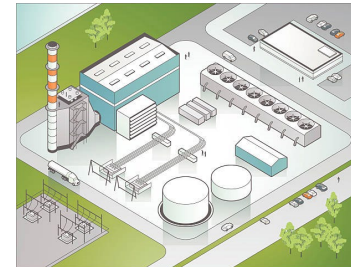
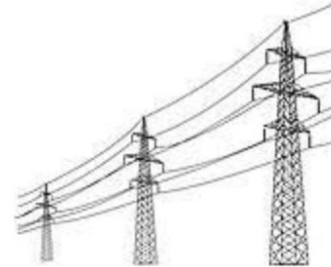
Public Power vs Investor Owned

Size	Average 5,000 -10,000 customers
Ownership	Local government body
Regulation	Utility Board or City Council
Business Objectives	Community goals, rates cover costs
Financing	Municipal Bonds
Power Supply	Shared resources & local ownership

Size	Average 400,000 customers
Ownership	Shareholders –nationwide
Regulation	State Public Utility Commission
Business Objectives	Earn fair risk adjusted return
Financing	Shareholder equity & taxable bonds
Power Supply	Owned & operated

Public Power – Michigan

- 40 Municipal Electric Utilities in the State of Michigan (approx 2 GW or 10% of load)
- Joint Action Agencies (JAA) formed -1970s
 - Enabling Legislation
 - Formed consortiums to invest in baseload power projects
 - Pooled needs of its members, finance (bond) and own a % of central station power
 - Member participants under JAA obligated through Municipal Resolution
 - Project sharing – economics & risk
- Michigan has 3 JAA's, MPPA, MSCPA and WPPI (UP Michigan)



JOINT ACTION

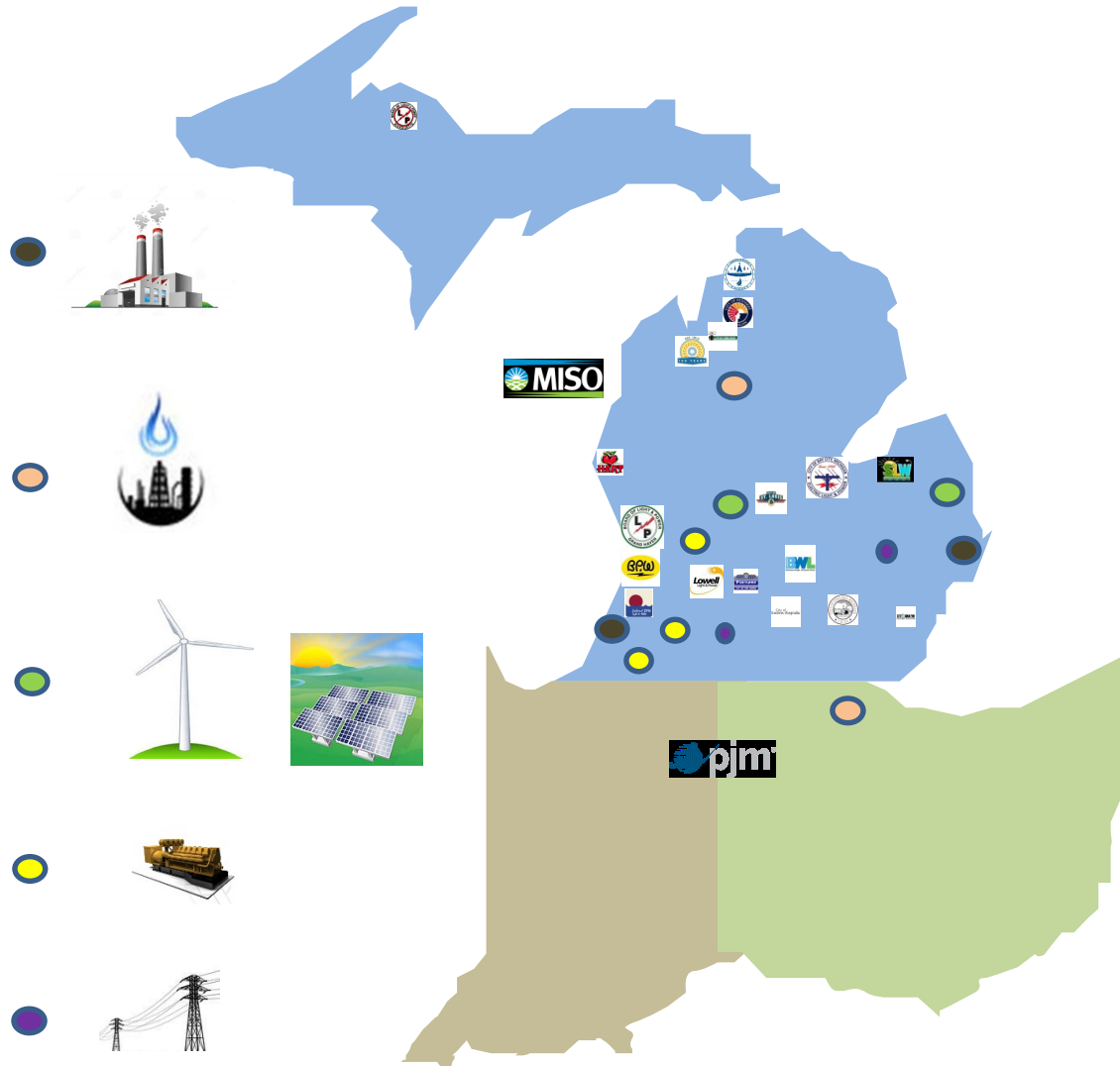
Michigan Public Power Agency

1978, Act 448 of 1976

- 40 + Years in Operation
- 22 Full Members
- 85% of Municipal electric retail energy sales
- 90 + % of Municipal Owned electric generation
- Two RTO's

Power Supply Resources

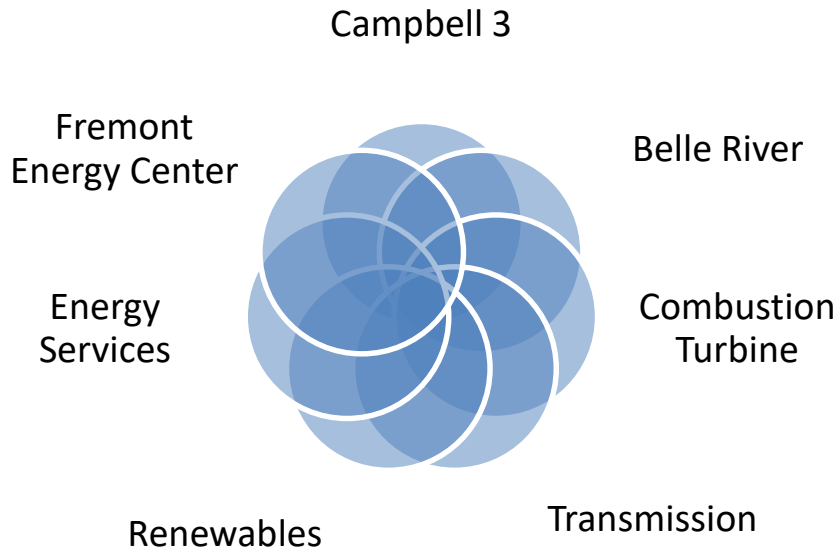
- Coal
- Natural Gas
- Wind
- Solar
- Landfill Gas
- Transmission



Project Based Agency

Project Based means a Member chooses to participate in Resources or Services that fit its needs

Project Committees



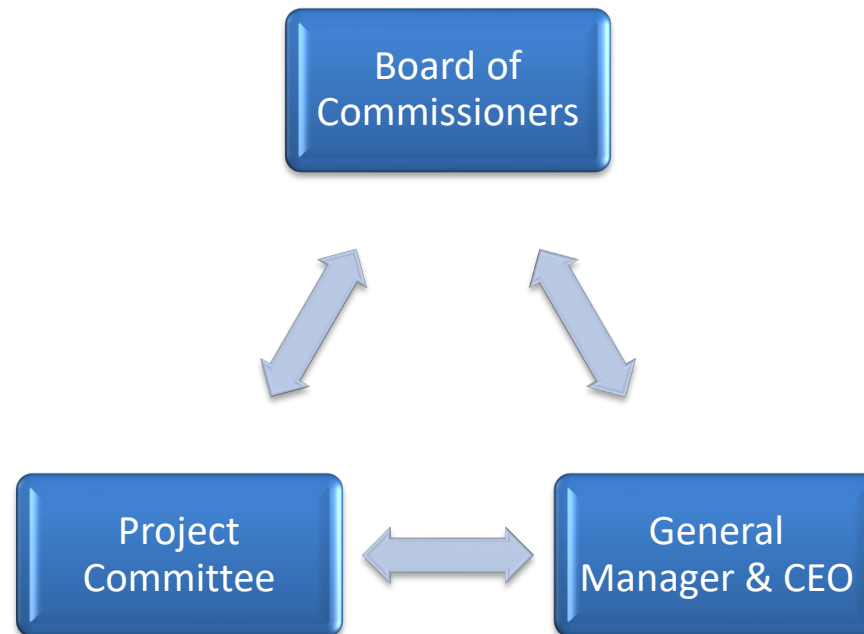
Benefits of independence while leveraging expertise, resource sharing and economies of scale

Service Committees



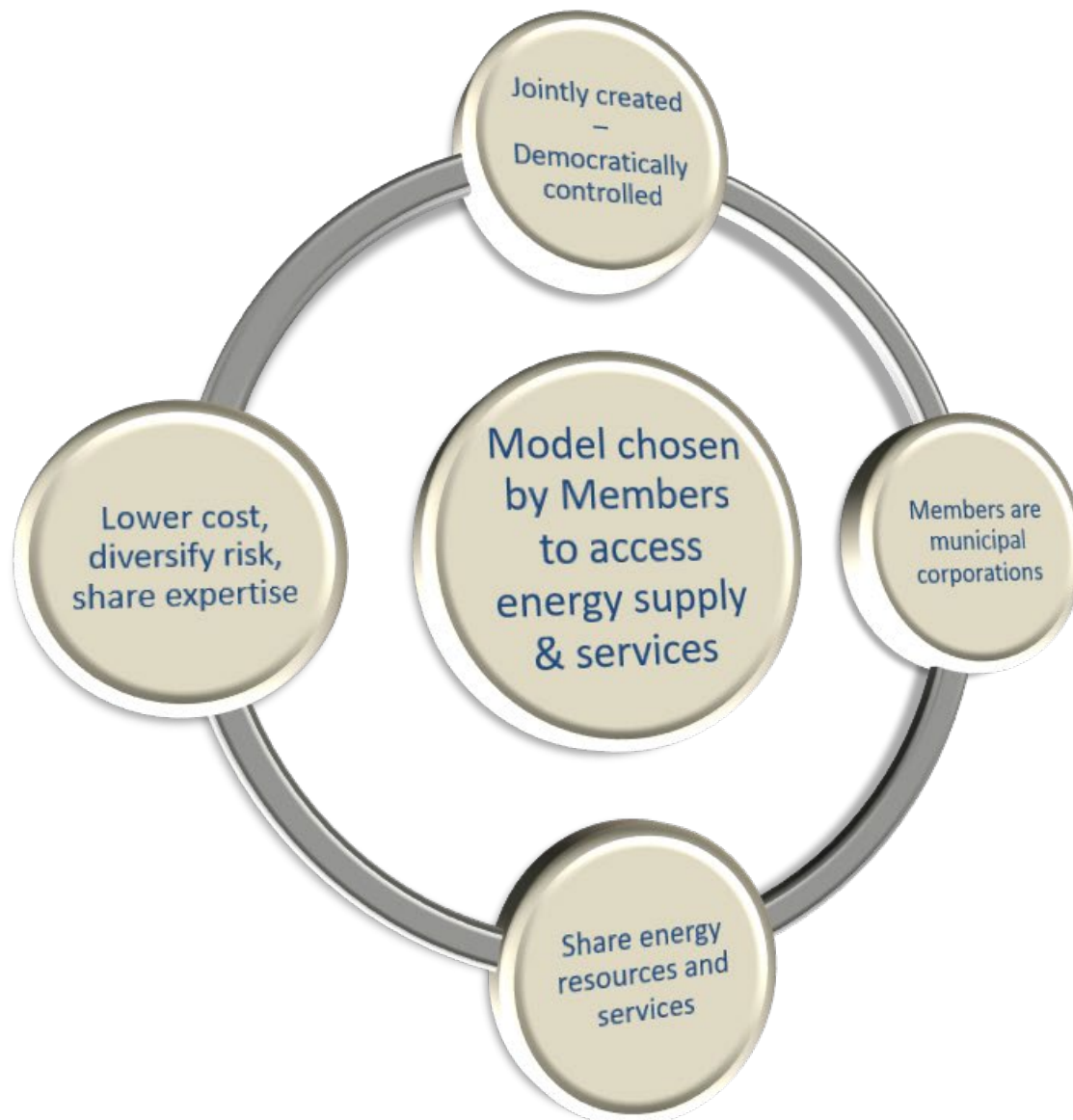
Governance System

Governing structure based on checks and balances. Separation of authority ensures effective representation & decision-making



Resolutions approved by a majority vote of the Board of Commissioners

Agency Business Model



Membership Principles

Control — A Member influences direction of the Agency through its representation on the Board

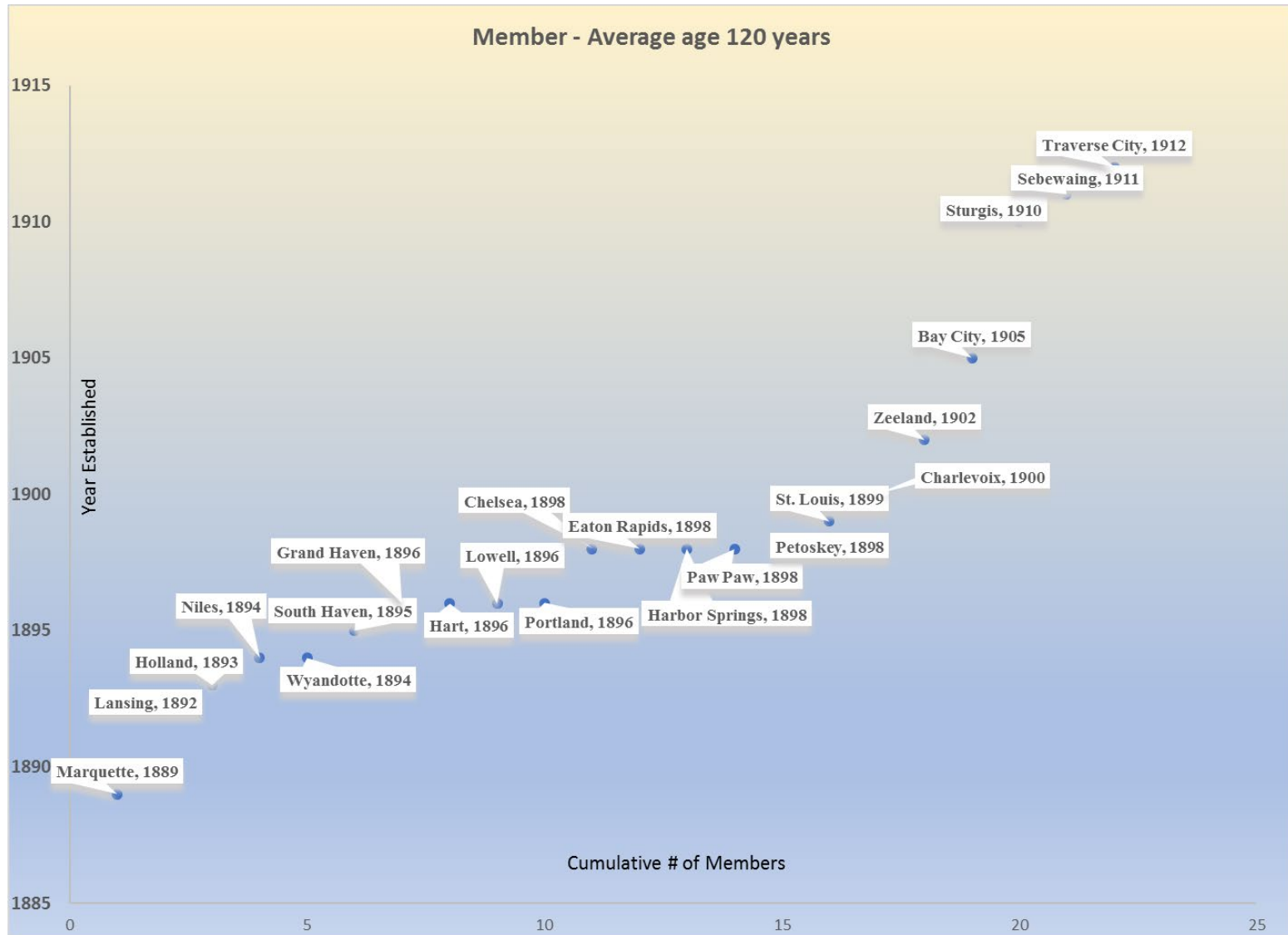
Teamwork — A Member is a Municipal Electric Utility with aligned business interest



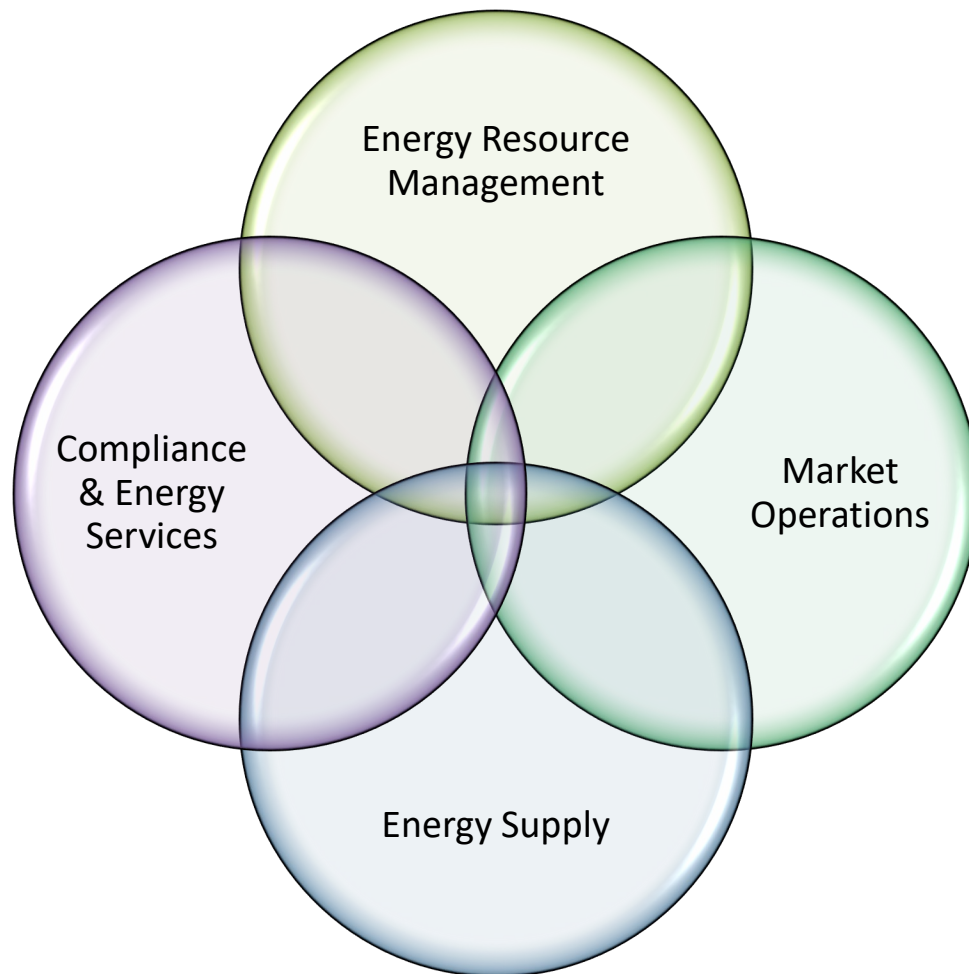
Trust — Agency & its Members are a source of stability in an otherwise volatile energy market

Continuity — Agency provide expertise to manage through staffing turnover, experience gaps and succession planning of Member

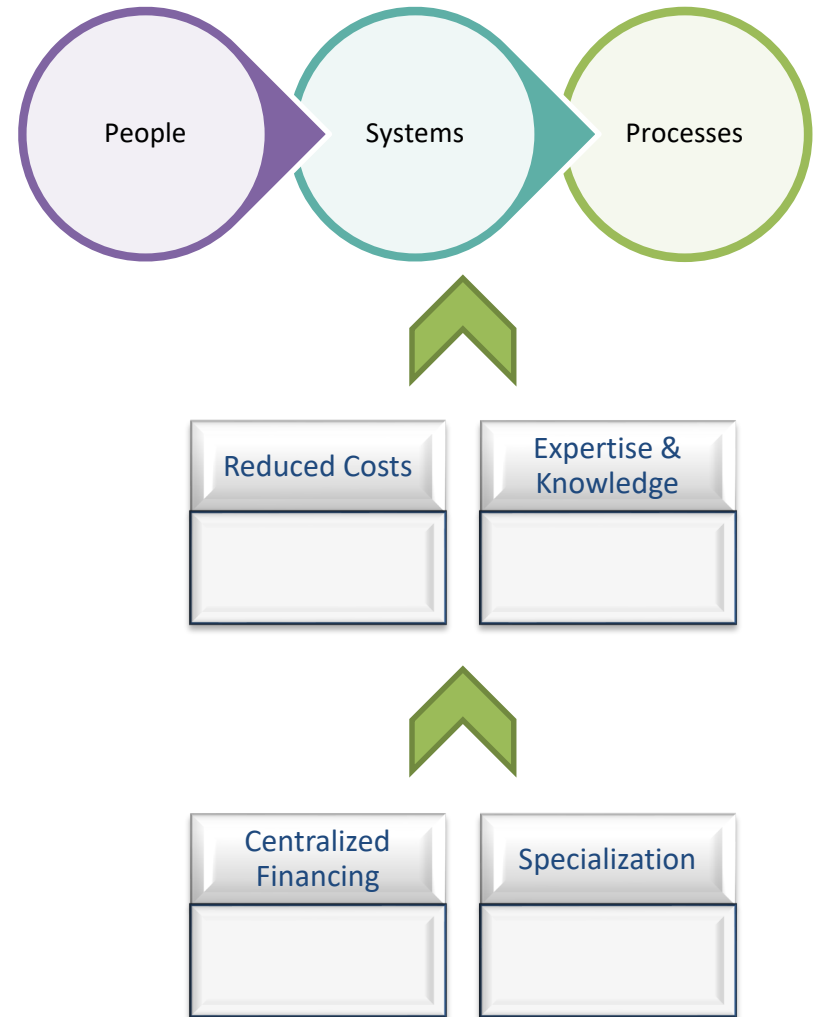
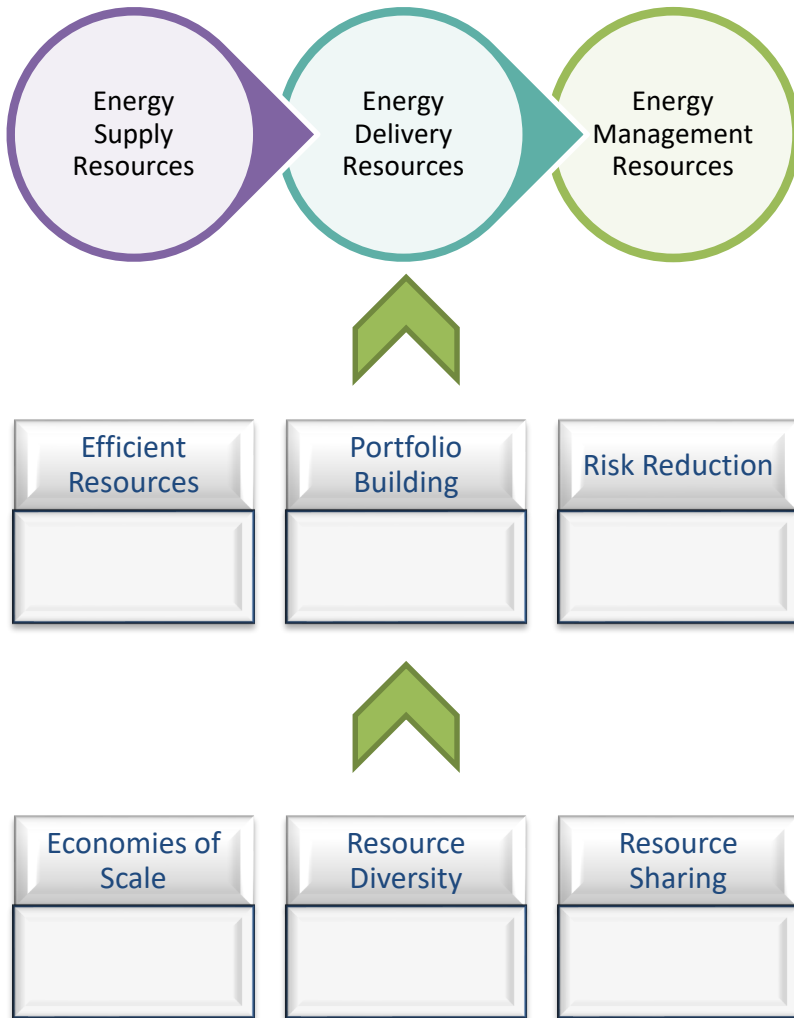
Meet the Members – Durable Operators



Primary Business Functions



Economic Principles



Energy Supply

Market Transactions	Power Purchase Agreements	Asset Investment
• T < 5 Years • Standardized • Routine	• T > 5 Years • Customized • Resource driven	• T > 10 years • Wholesale Grid • Local - Community

Contract Arrangements

- Markets can be below Asset cost
- Eliminates need for Environmental & Reliability Compliance
- Financially Firm (Asset Operating risk eliminated)
- Admin Costs (Staffing, reporting, accounting eliminated)
- Market Products Standardized

Asset Ownership

- Assets can be below market costs
- Assets provide access to long-term supply
- Eliminate Counterparty - Contract Credit Risk (it's your Asset)
- Contain Residual Value
- Can address Local Reliability



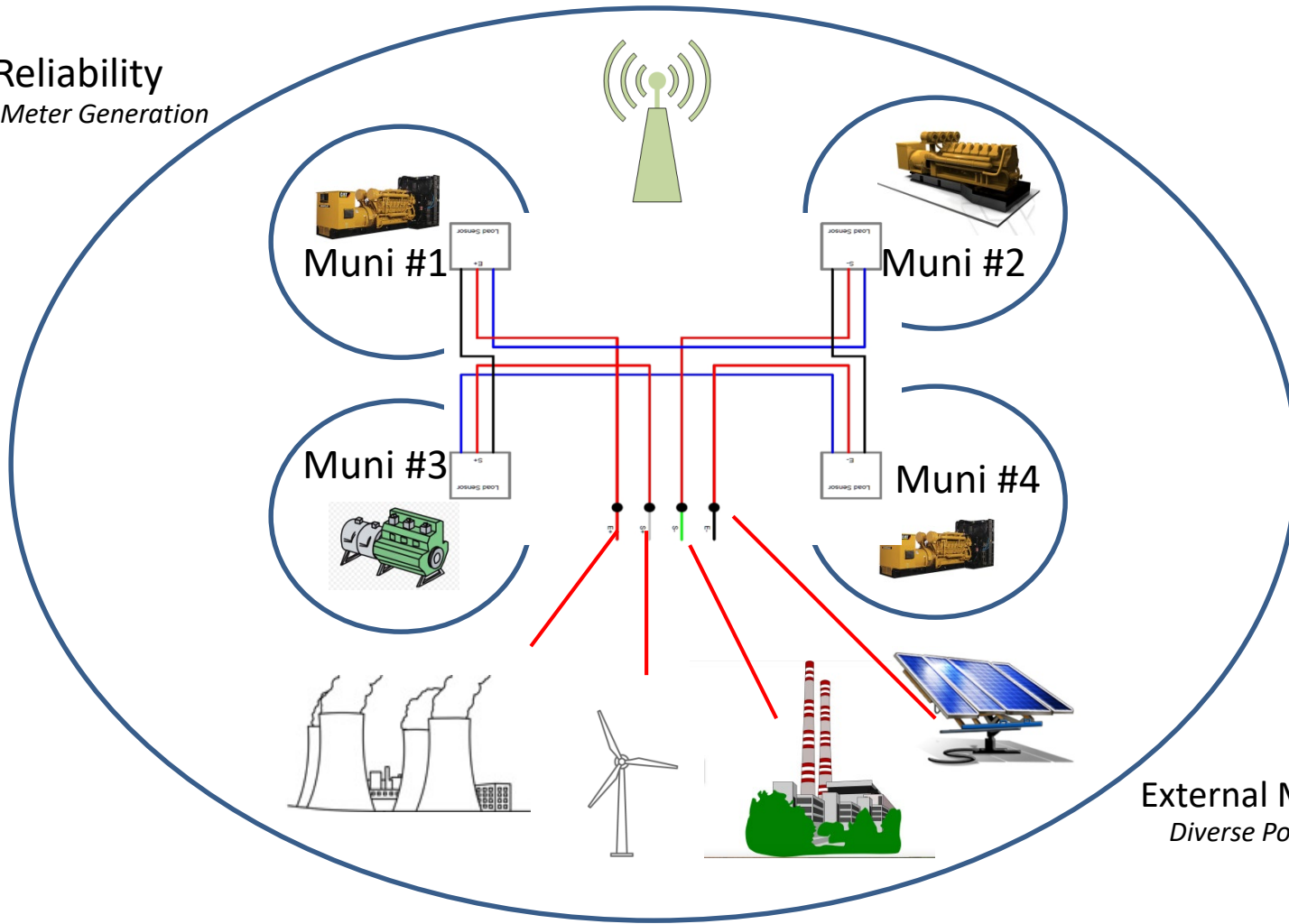
MPPA balances both Contracted & Owned Assets to create the most value for Members

Energy Resource Management

Commercialize energy assets thru economic strategy in wholesale markets

Local Reliability

Behind the Meter Generation



External Market Resources
Diverse Portfolio of Supply

Market Operations

Operations

- Planning
- Load Forecasting
- Meter Data Management
- Scheduling
- Asset bid / offer strategy

Settlements

- Energy
- Capacity
- Ancillary Services
- Transmission



Compliance & Energy Services



Financial

- EMMA
- GASB
- State Treasury

Reliability

- NERC
- MISO
- MPSC

Environmental

- MDEQ
- EPA

State Energy Mandates

- RPS
- EWR
- VGP

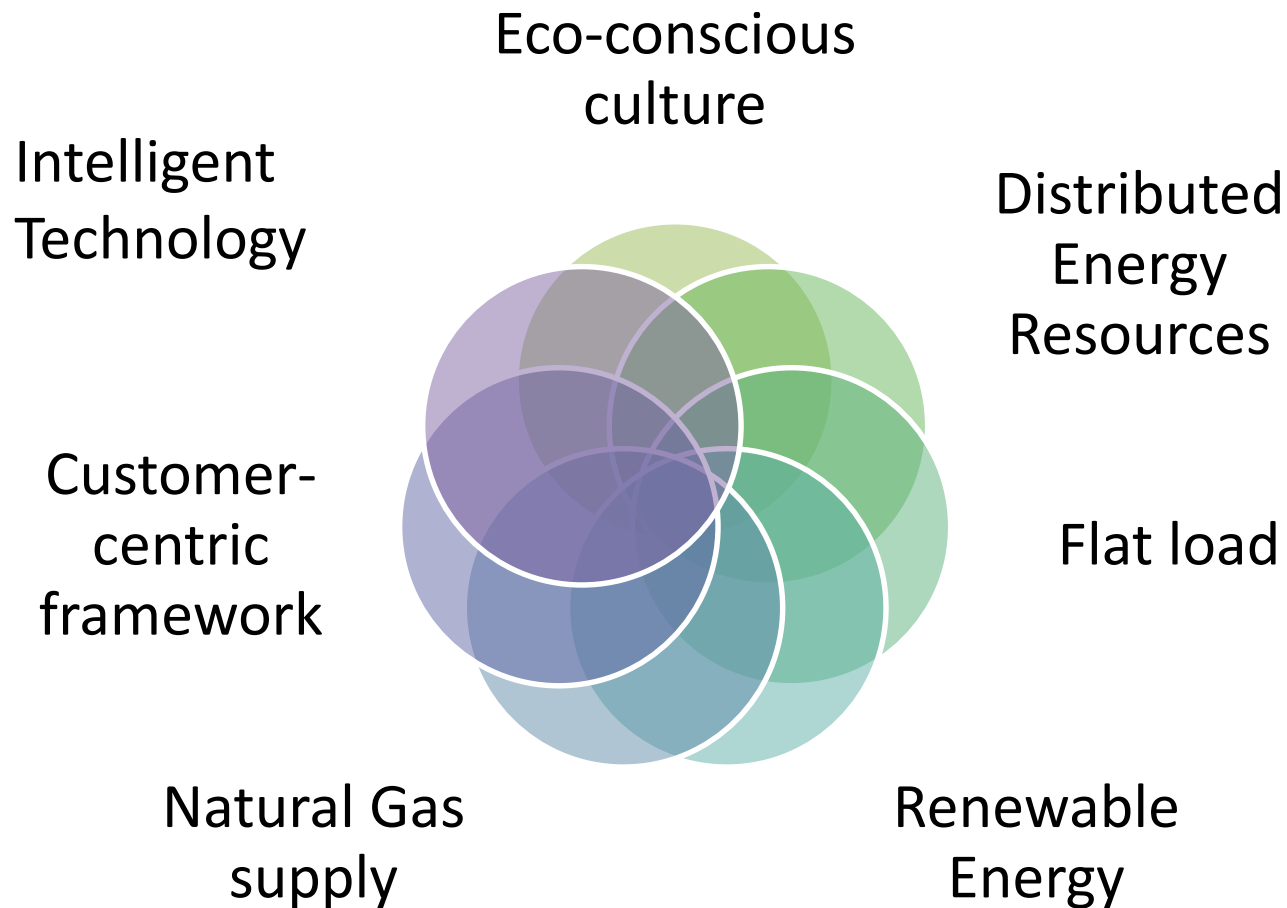
Wholesale Tariffs

- MISO
- FERC

Despite being exempt from Federal and State rate regulation, Public Power must comply with a dizzying array of regulation

Public Power Utility rates have a statutory exclusion by Congress under the Federal Power Act (“FPA”) and exempt from regulation by the Michigan Public Service Commission (section 6 - Public Service Commission Act)

Forces shaping the future



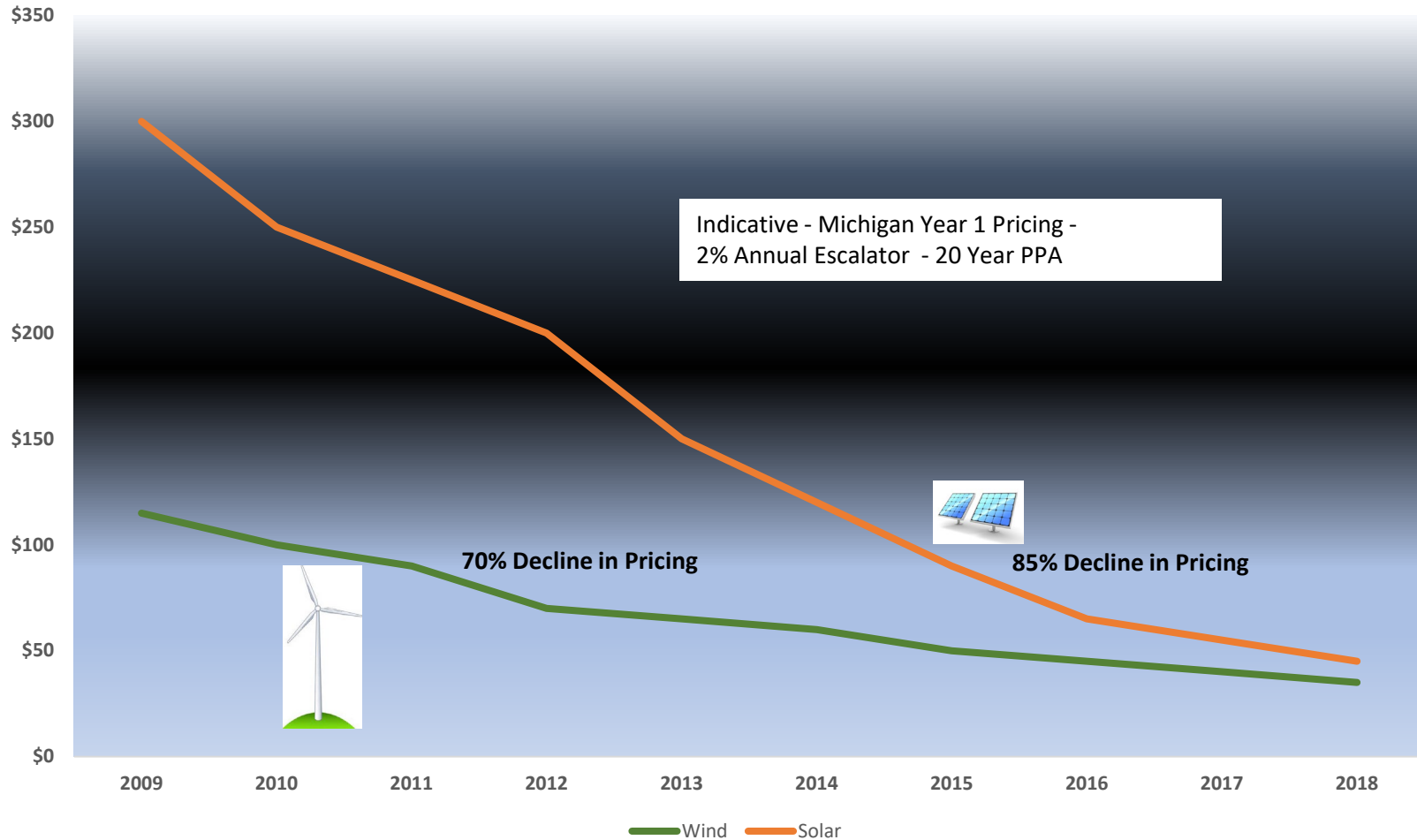
Natural Gas – Competitive Supply



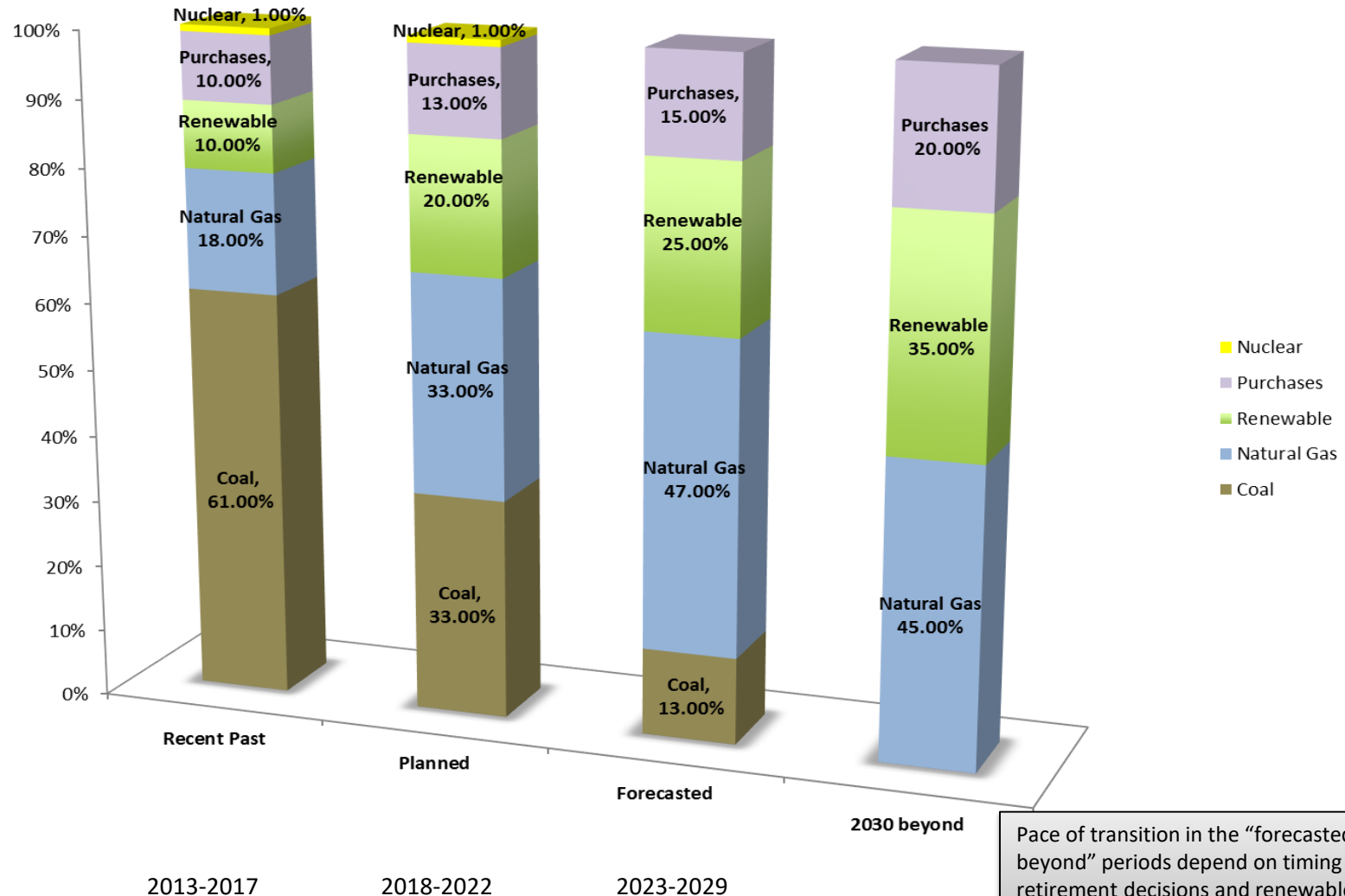
Henry Hub Natural Gas Prices - \$ / MM/Btu

Renewables – Competitive Supply

Wind & Solar PPA Prices (\$/ MWh)



Power Supply Transformation

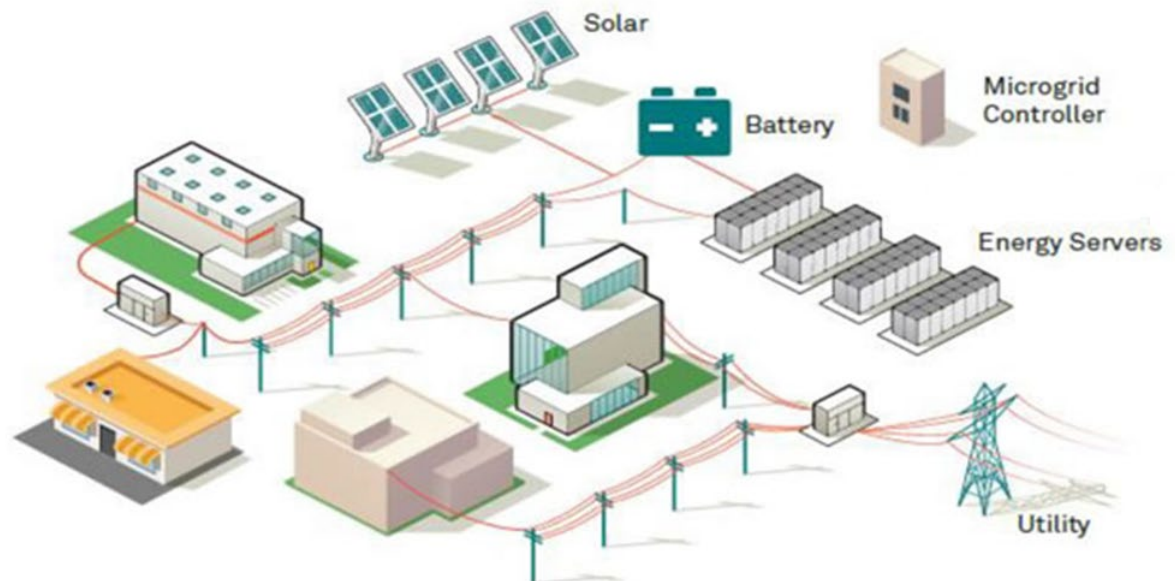


Distributed Energy Resources

Productivity and efficiency advancements from technology changing the grid at an accelerating pace

The exciting future of the power business is local on a Member's distribution system

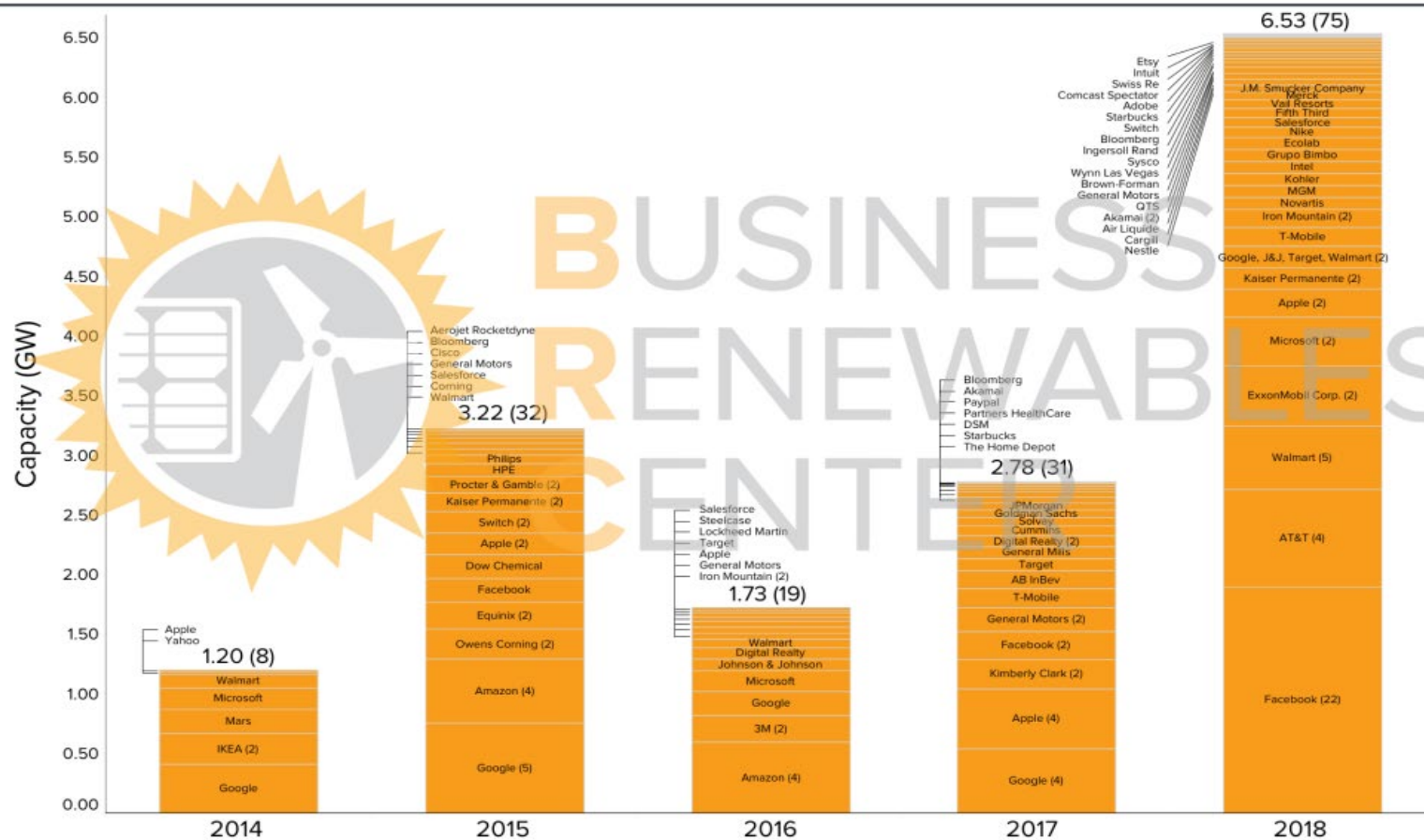
- Fuel Cells
- Small Reciprocating Engine
- Distributed Solar
- Demand Response
- Battery Storage
- Electric Vehicles
- Smart Energy Management



Customer – New Supply Planner?



Corporate Renewable Deals 2014 – 2018



As of December 31, 2018. Publicly announced contracted capacity of corporate Power Purchase Agreements, Green Power Purchases, Green Tariffs, and Outright Project Ownership in the US, 2014 – 2018. Excludes on-site generation (e.g., rooftop solar PV) and deals with operating plants. (#) indicates number of deals each year by individual companies. Copyright 2018 by Rocky Mountain Institute.

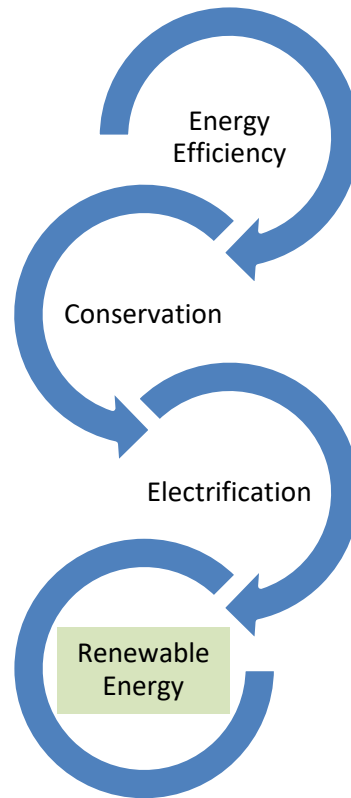
Decarbonization Strategic Plan

Basic Electric Utility Tools



Example: City of Holland set a Greenhouse gas emissions per capita (CO₂e/capita) in their Community Energy Efficiency and Conversation Strategy

- Ensure economic competitiveness
- Provide reliable and affordable energy
- Protect the environment

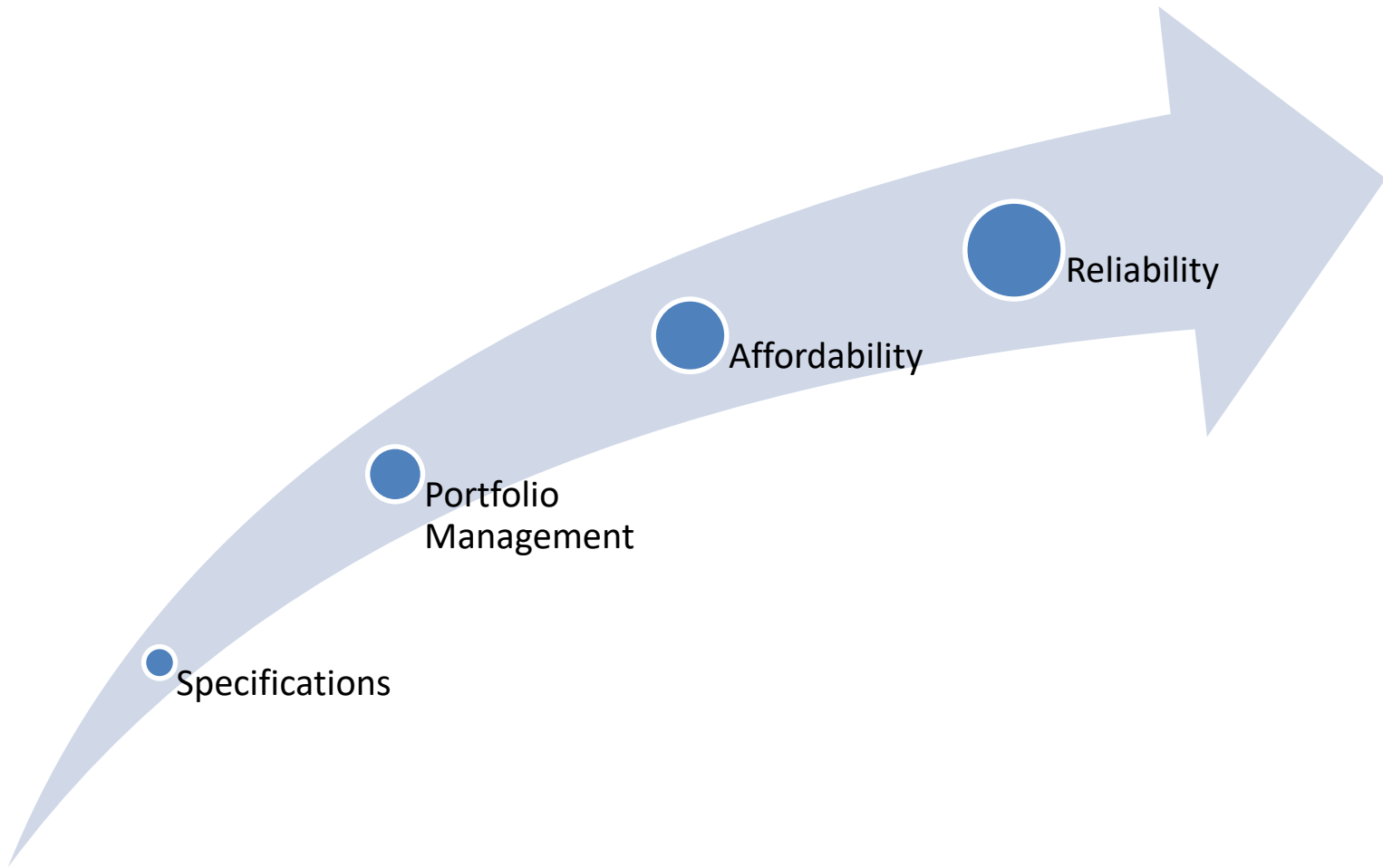


Programs and Infrastructure

Renewable Resource Plan

Sustainable Return on Investment

Renewable Resource Plan



Renewable Resource Plan

Supply Specifications

A **specification** refers to the documented requirements of a material, design, product, or service

State Compliance Requirements

- Clean and Renewable Energy and Energy Waste Reduction Act (Act 295 of 2008)
 - Solar, wind, landfill, water, municipal solid waste to energy in Michigan
 - Existing (some exceptions) and new renewable resources qualified
- Act No 342 of 2016
 - Present – 10%
 - 2019-2020 – 12.5%
 - 2021 – 15%
 - 35% goal of combined renewable energy and energy waste reduction (“EWR”) is a sum total since 2008

Renewable Specifications

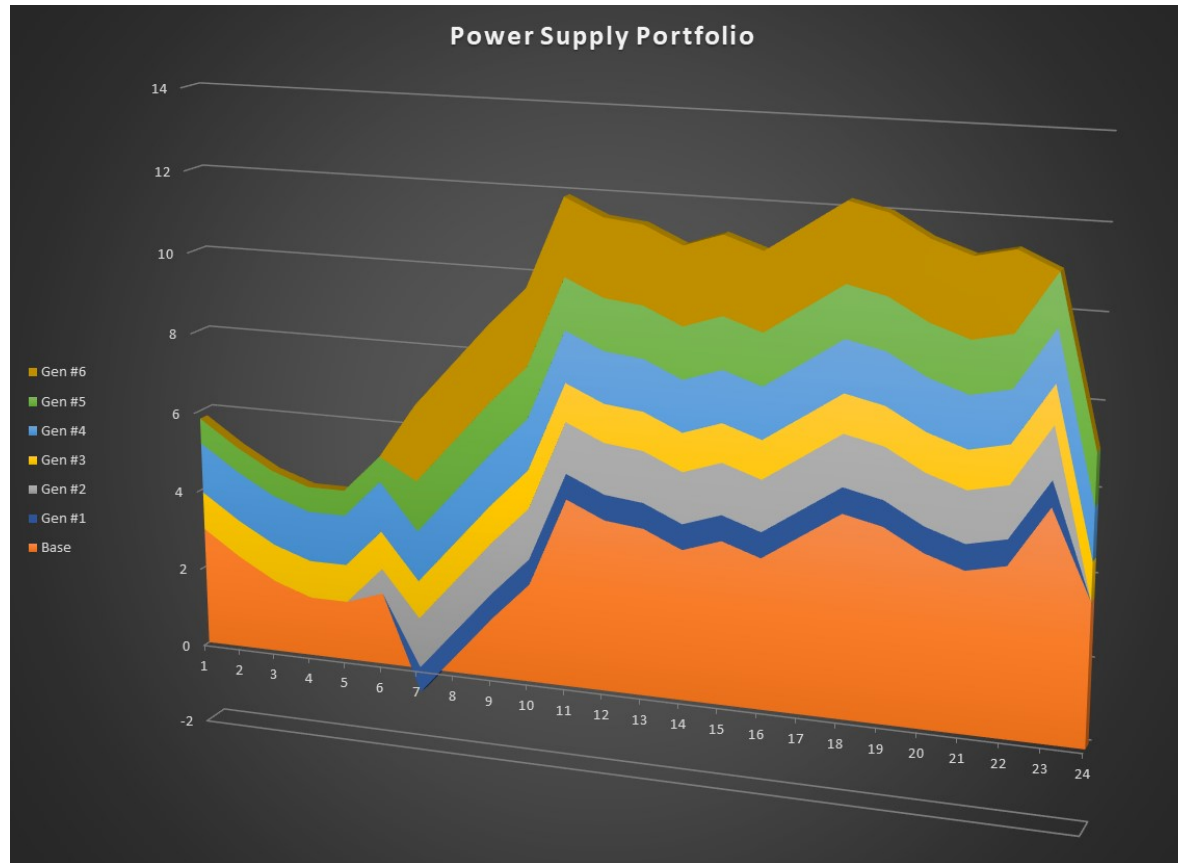
- New or existing (do you want to change grid?)
- Fuel Type (wind, solar, water, biomass)
- Geographic location (local, regional, national)
- Cost / utility Rate impact
- Diversification (contribution of each resource)
- Technology Obsolescence (layering)
- Vintage (banked)



Voluntary Objectives must have Specifications otherwise community goals may not be met

Renewable Resource Plan Portfolio Management

Charlevoix Power Supply Profile Annualized over one day



Diversification

- Small volumes - many resources
- Layered in at different costs
- Unique start and end dates
- Geographically disparate
- Different technology
- Owned and contracted

Transition to Renewables must maintain prudent risk management

Renewable Resource Plan

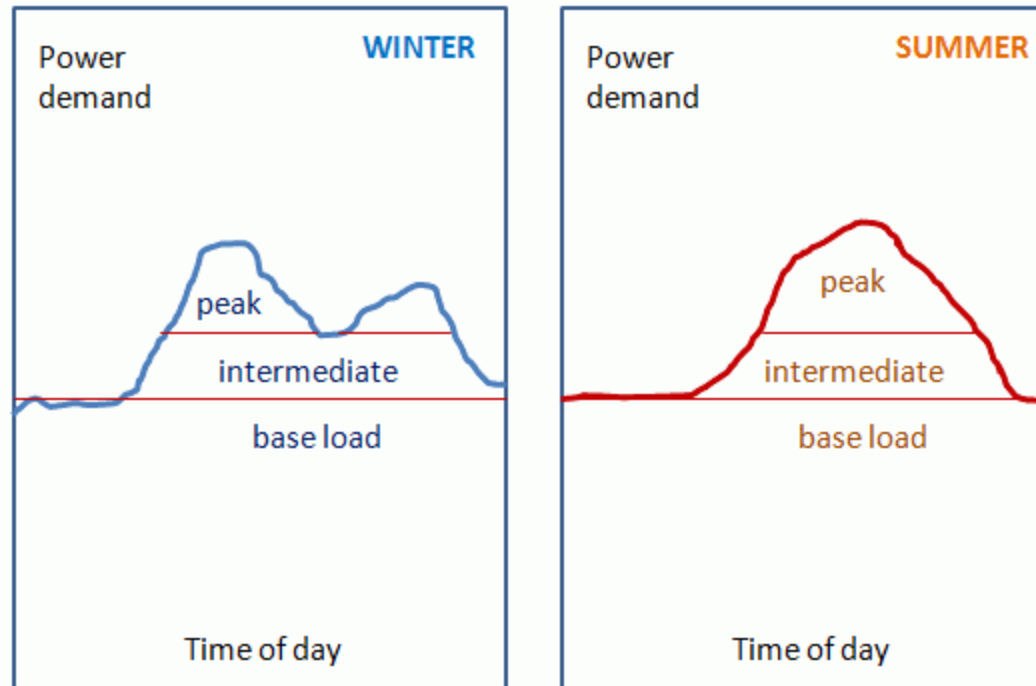
Affordability



- Public Power Advantage (tax exempt)
- Measure - neighbor utilities (IOU's & Coop's)
- Effective Rate Design
- Residential, Commercial and Industrial
- Protect Low Income Customers
- Lower Bills not just rates

Renewable Resource Plan

Capacity vs. Energy

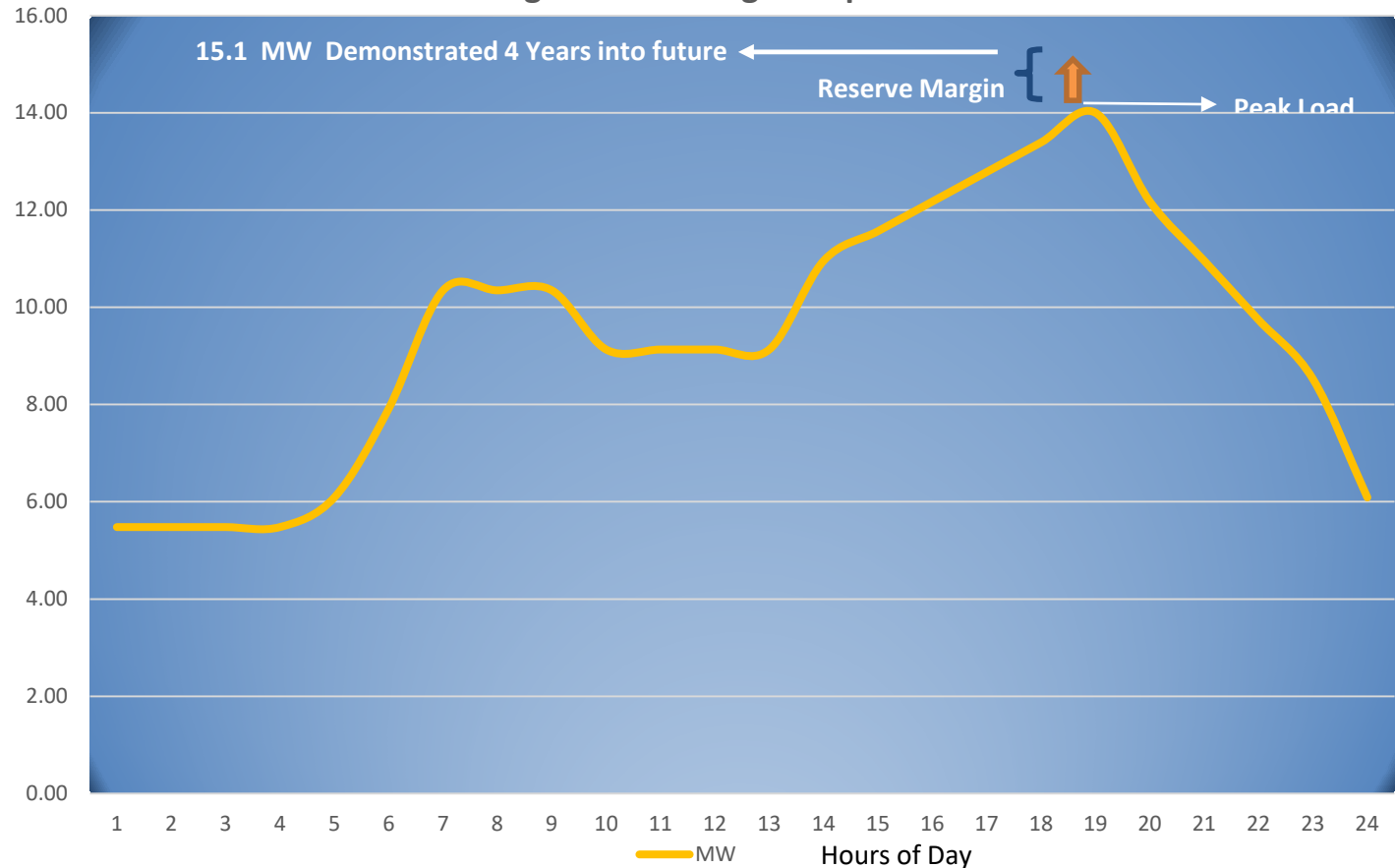


- Federal standards require enough power supply to meet expected annual peak plus reserves
- Reserves equal additional power supply (above peak) that must be carried to guard uncertainty
- State of Michigan requires those standards be demonstrated 4.5 years in the future
- Renewable Energy is measured against energy consumption not against Capacity

Renewable Resource Plan

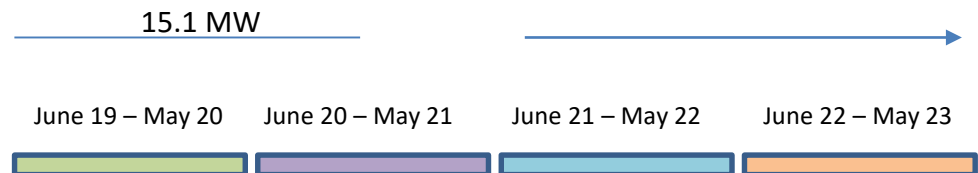
Reliability Planning

Planning Reserve Margin Requirement



Public Power Utilities must demonstrate they have electric generating capacity owned or contracted to meet peak load plus reserves 4.5 years in advance

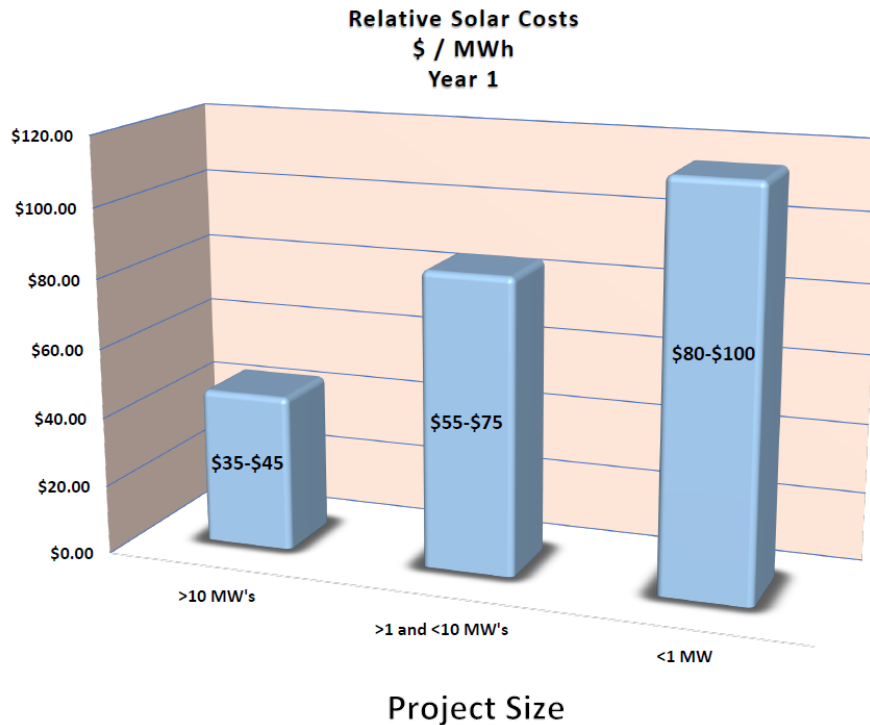
Capacity Demonstration Filing Due
↓
Feb 2019



Joint Action – Renewable Supply

Economics and Next Steps

Economies of Scale



- Agency refining organizational design to focus on Strategic Power Supply (x > 6 years)
- Staff proposed establishing Advanced Renewable Energy Project for Members that want to accelerate transition to renewables. Ensure Members are:
 - Minimizing cost through economies of scale
 - Diversify supply participation across resources and projects (portfolio management)
 - Layer in supply over time to participate in technology advancement
 - Budget for Affordability for all customers
 - Consider / plan for reliability

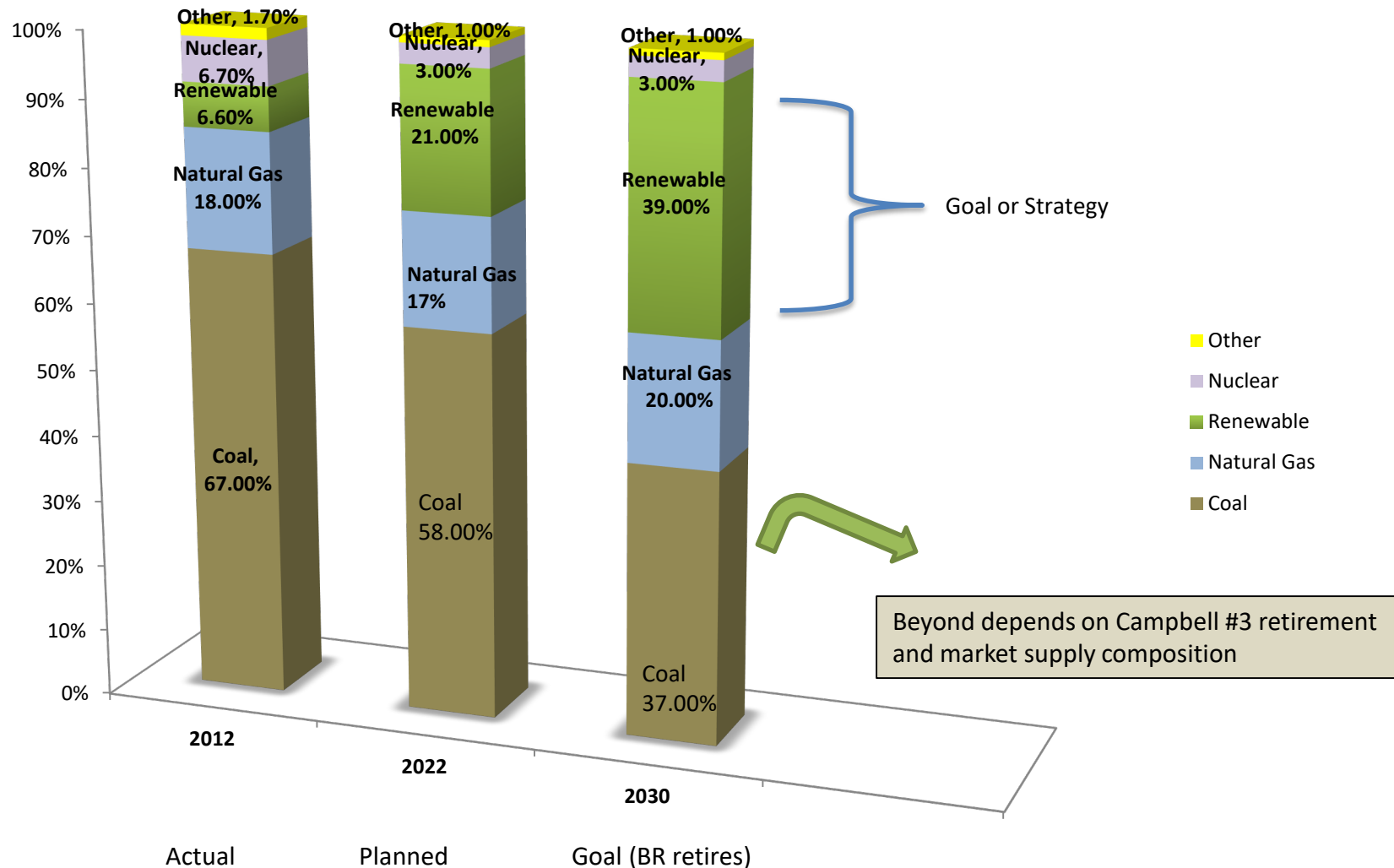
Joint Action – Renewable Supply



All Full Members participated to share resources, reduce risk and get best economics

- Executed 350 MW of Power Purchase Agreements since 2008 – representing approx. 18% of total Agency energy needs
- Additionally some Members have their own projects
- Contracted instead of owned because of Federal Tax Credits (can't be monetized by Muni's)
- That will change with PTC / ITC phase out (2022)
- New Wind is a big challenge – Muni's, Coop's and IOU's all experienced project failure
- Executed 100 MW of Solar and looking to double that to counteract wind challenges

Charlevoix Power Supply Fuel Composition



What is the path forward ?

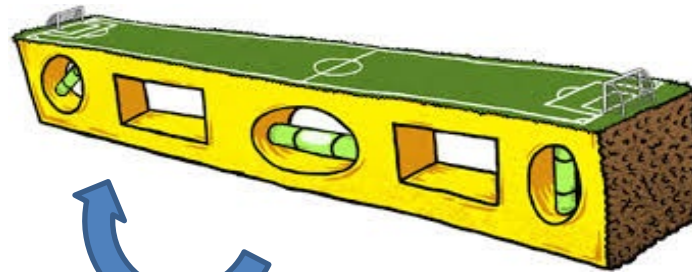
Market forces leveling the playing field for public power

Distributed Energy
Resources



Leverage local people & infrastructure
without sacrificing economics

Natural Gas



Easily accessible, competitively
priced for small users

Renewable Energy



Thru Joint Action – equivalent
economics to IOU's

Competitive regional markets



Open access to all market
participants, visibility of prices

Joint Action & Public Power

can we advance to take advantage of market forces?

Only if we invest in people, infrastructure & systems

