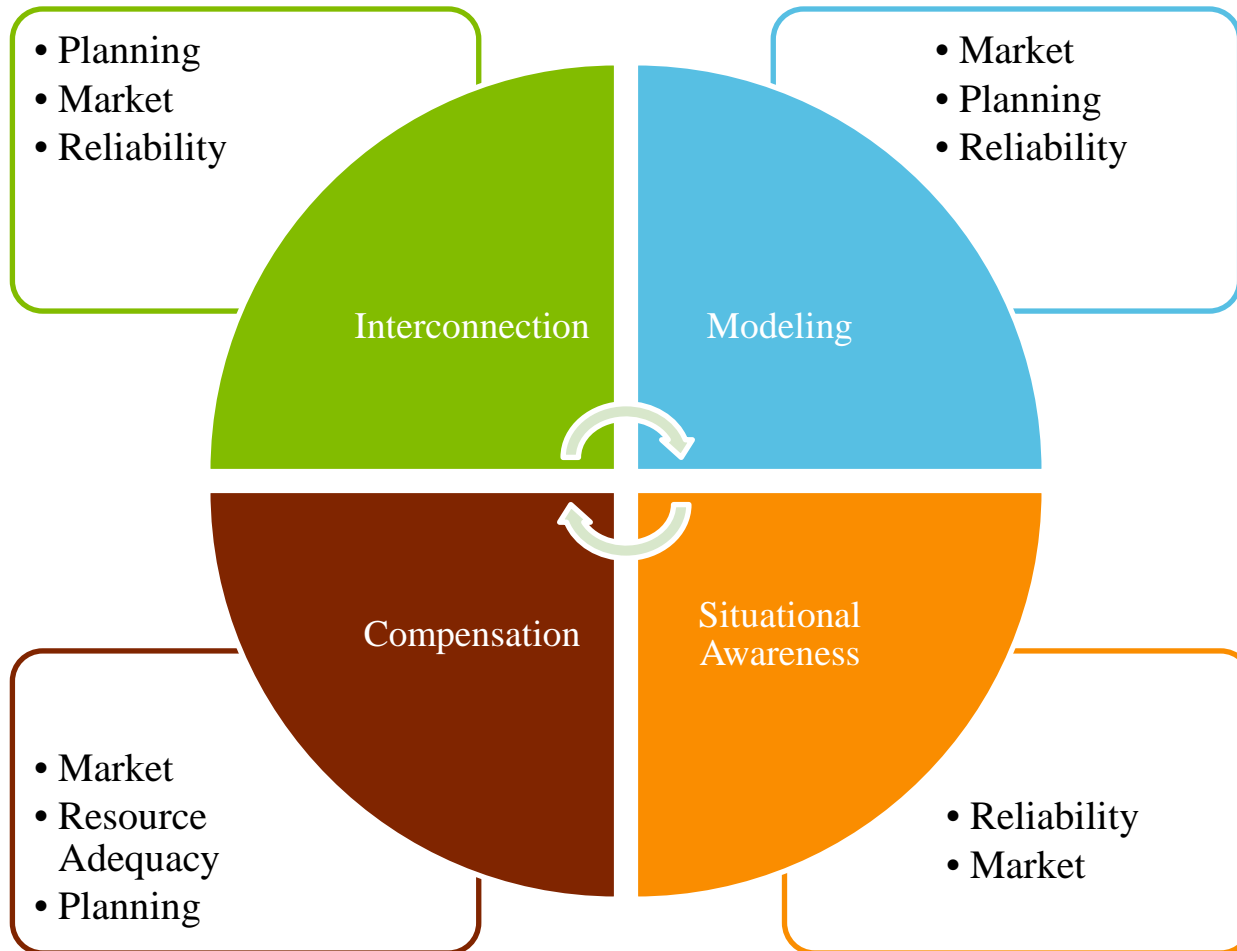# Common Issue Workshop: Energy Storage
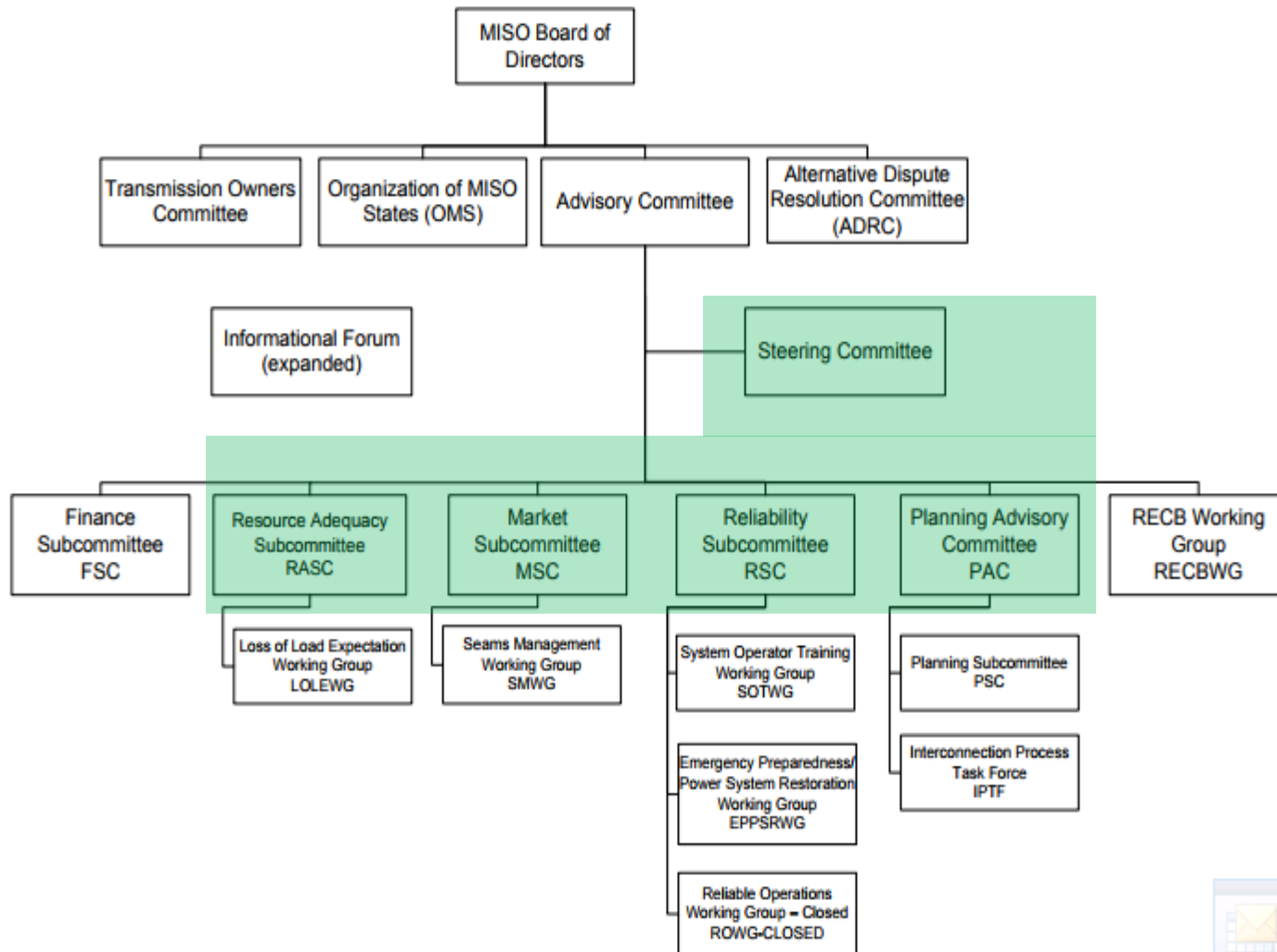
August 24, 2017

Focus for Near Term

- Battery Storage
  - Stand lone
  - Co-located with other Resources
- Hydro
  - Manitoba Hydro/run-of-river
  - Pumped Storage
- Considerations for further integration
  - Distributed Energy Resources (Aggregation)
  - Electric Vehicle

Main Parent Entity (MPE) Issue Commonality

- Planning
- Market
- Reliability

- Market
- Planning
- Reliability

Interconnection

Modeling

Compensation

Situational Awareness

- Market
- Resource Adequacy
- Planning

- Reliability
- Market

MISO

Impacted Main Parent Entities

Interconnection

- Planning Advisory Committee

  - Study methodologies for interconnection – as intended to be used - generation and load

- Market Subcommittee

  - No harm test/operating characteristics

- Reliability Subcommittee

  - No harm test/operating characteristics

Modeling

- Market Subcommittee
  - Develop market participation model(s)
  - Security Constrained Unit Commitment (SCUC) and Security Constrained Economic Dispatch (SCED) as both generation and demand resources
  - Multi-day SCUC and SCED modeling
- Planning Advisory Committee
  - study methodologies for interconnection – as intended to be used
  - Energy Storage Resource (ESR) used as a transmission issue solution   congestion/reliability – temporary and/or long term
- Reliability Subcommittee
  - Information needed for real time operations situational awareness
  - Model should account for, and be able to represent the storage capabilities and potential uses

MISO

Situational Awareness

- Reliability Subcommittee

  - Understand operating characteristics and resulting impacts, mitigation operations

- Market Subcommittee

  - Develop market participation model(s)

MISO

Compensation

- Market Subcommittee

  - Compensation rules for energy

  - Compensation rules for ancillary services

- Resource Adequacy Subcommittee

  - Capacity accreditation

- Planning Advisory Committee

  - Cost recovery as a Transmission Asset

MISO

Next Steps

- Update on formation of Energy Storage Task Force

- Charter/Management Plan brainstorming

  - Management of sub-issues (project management)

  - Scope

  - Priorities

  - Current stakeholder activities

  - Stakeholder Communication Plan