

AGENCY REVIEW JURISDICTIONAL SCAN

PREPARED FOR THE IPPSA

NOVEMBER 3, 2017

NAVIGANT

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

KEY FINDINGS

Organization Structure

- In most jurisdictions (ON, NY, PJM, CA) the ISO is responsible for the market rule change/development process
- In Australia a separate organization, the AEMC, is responsible for rule making and market development; manages rule change requests
- In the UK Ofgem who also acts as the regulator and market monitor is responsible for market rule changes

Stakeholder Engagement

- Stakeholders are able to review rule changes and provide comments in all jurisdictions
- In some jurisdictions (PJM & NY), stakeholders are also involved in developing market rule change language and in voting on market rule changes
- In the event that stakeholders vote on market rule changes and a consensus can't be reached the dispute resolution process begins though this is not common as jurisdictions strive for stakeholder consensus
- The level of stakeholder involvement is tied to the governance structure in each jurisdiction

EXECUTIVE SUMMARY

KEY FINDINGS

Market Monitoring & Compliance

- In all North American jurisdictions market monitoring is carried out by a division of the ISO
 - In NYISO and PJM an external market monitor works jointly with ISO MMU
- In Australia and the UK it is carried out by the regulator
 - The regulator in the UK is also responsible for market rule changes so is very well knowledgeable on electricity market

Dispute Resolution

- In all jurisdictions disputes are settled by the regulator though it is rare for disputes to escalate to that point given the involvement of stakeholders in the processes.



OVERVIEW

OVERVIEW

INDUSTRY ENTITIES

	Ontario	Australia	United Kingdom
Policy Maker	<ul style="list-style-type: none"> Ontario Ministry of Energy 	<ul style="list-style-type: none"> Council of Australian Government Energy Council 	<ul style="list-style-type: none"> Department for Business, Energy and Industrial Strategy (BEIS)
Regulator	<ul style="list-style-type: none"> OEB Competition Bureau 	<ul style="list-style-type: none"> AER AEMC (rule maker) ACCC 	<ul style="list-style-type: none"> Ofgem GEMA CMA ACER
System Operator	<ul style="list-style-type: none"> IESO 	<ul style="list-style-type: none"> AEMO 	<ul style="list-style-type: none"> NGET ELEXON (Balancing Authority)
Market Monitor	<ul style="list-style-type: none"> IESO 	<ul style="list-style-type: none"> AER 	<ul style="list-style-type: none"> Ofgem
Consumer Advocate	<ul style="list-style-type: none"> OEB Intervenors 	<ul style="list-style-type: none"> Energy Consumers Australia 	<ul style="list-style-type: none"> Ofgem

OVERVIEW

INDUSTRY ENTITIES

	New York	PJM	California
Policy Maker	<ul style="list-style-type: none"> New York State Department of Public Service 	<ul style="list-style-type: none"> Agencies in respective jurisdictions 	<ul style="list-style-type: none"> California Energy Commission
Regulator	<ul style="list-style-type: none"> NYPSC FERC FTC 	<ul style="list-style-type: none"> FERC 	<ul style="list-style-type: none"> CPUC FERC
System Operator	<ul style="list-style-type: none"> NYISO 	<ul style="list-style-type: none"> PJM - ISO 	<ul style="list-style-type: none"> CAISO
Market Monitor	<ul style="list-style-type: none"> MMU (Under NYISO) 	<ul style="list-style-type: none"> MMU (under ISO) Monitoring Analytics 	<ul style="list-style-type: none"> CAISO
Consumer Advocate	<ul style="list-style-type: none"> No independent utility consumer advocate 	<ul style="list-style-type: none"> As mandated by laws of respective jurisdictions 	<ul style="list-style-type: none"> Office of Ratepayer Advocates (CPUC)

Market governance can be categorized into general processes for modifying market rules and general processes for managing disputes.

Governance of Market Rules

- Broad similarities between ISOs with the exception of whether FERC must approve all rule changes
- Stakeholder involvement generally pursues broad consensus
- Stakeholder committees submit proposals to ISOs but the ISOs have the final say in most cases

Governance of Market Disputes

- For most ISOs the first step in a market dispute is arbitration by neutral party
- In FERC jurisdictions, appeal to the commission is always an option

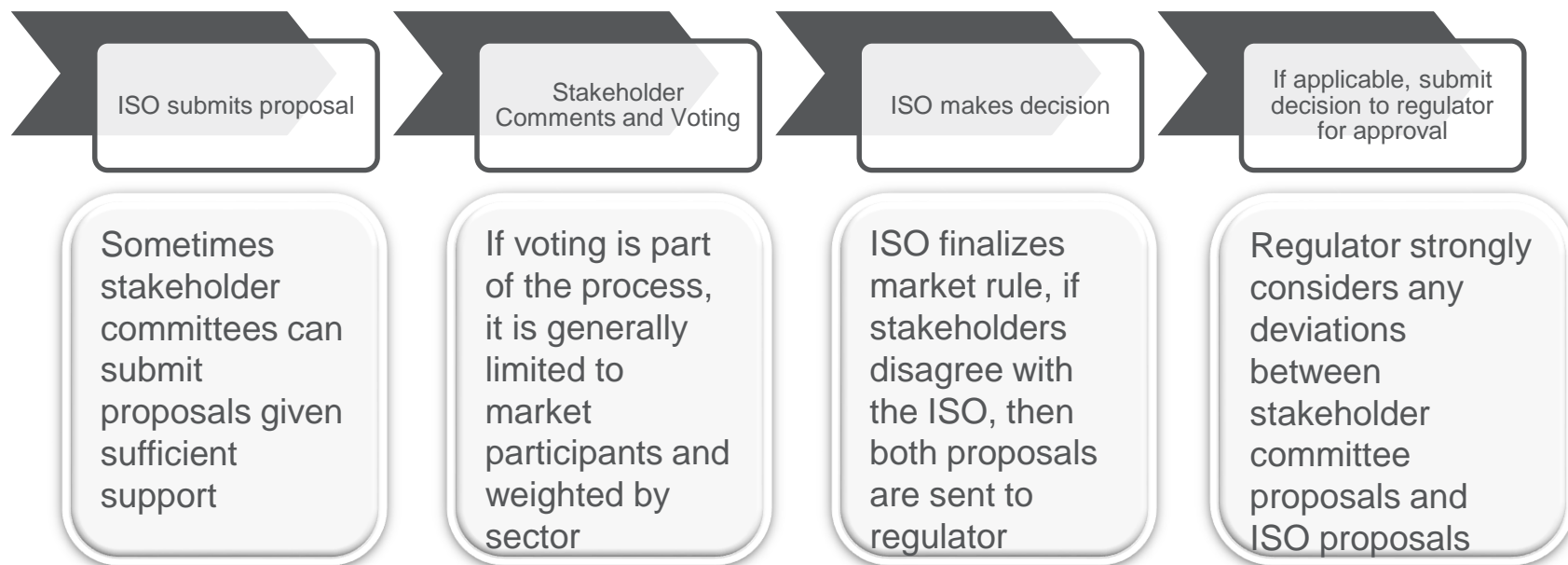
- Market rules are defined broadly to include both setting specific auction parameters to the creation of a new market
- Market disputes are any disagreement on application of market rules

OVERVIEW

GOVERNANCE FOR DEFINING MARKET RULES

Governance of market rules covers everything from setting specific capacity market demand slope parameters to the creation of new markets

- Across markets, the ISO maintains the final decision making process but generally look for broad consensus from stakeholders
- In some jurisdictions stakeholders are involved in committees which vote on market rule changes
- In most jurisdictions, final approval is from the regulator if any disputes arise



OVERVIEW

STAKEHOLDER ENGAGEMENT

Stakeholder involvement ranges from collecting and recording comments to allowing stakeholders full voting rights.

Jurisdiction	Ranking	Description
Ontario	Full Consultation	The IESO Technical Panel, comprising stakeholder representatives, supports the IESO Board in the development and consideration of amendments to the market rules. In considering a rule amendment, the Technical Panel may request stakeholder input either in writing or at a consultation meeting. The Technical Panel will submit its recommendations for amendments to the market rules to the IESO Board for approval. The IESO Board will decide for or against the adoption of the market rule amendment or it may refer the amendment back to the Technical Panel for further consideration.
Australia	Full Consultation	In addition to submitting rule change requests, Stakeholders can provide input on the rule change proposal both to the AEMC and the proponent of the rule. AEMC assesses the request and publishes a consultation paper which includes the assessment of request against change criteria. Stakeholders can provide further input in response to the published AEMC consultation paper. The AEMC also engages with stakeholders throughout the rule change process through informal one-on-one discussions, workshops, forums and technical working groups.

OVERVIEW

STAKEHOLDER ENGAGEMENT

Jurisdiction	Ranking	Description
UK	Consultation	Stakeholders are can be involved at two stages in the market rule change process. Stakeholders are allowed to comment on proposed changes for the coming year prior to the annual participant prequalification for the auction. After the deadline for receiving current year proposals is passed, Ofgem decides which changes to implement and which ones will not move forward. Stakeholders are engaged at this point to comment on proposed changes for the following year.
NY	Stakeholder committee voting	NYISO has worked to improve transparency with stakeholders and has found that this helps gain them substantial agreement on priorities. Proposed manual revisions are developed by NYISO staff and stakeholders, and reviewed and approved by participants in the NYISO shared governance process. Proposed manual revisions must be posted on the NYISO web site for stakeholder review at least 15 days prior to a scheduled committee approval.

OVERVIEW

STAKEHOLDER ENGAGEMENT

Jurisdiction	Ranking	Description
PJM	Stakeholder committee voting	Any changes made to the PJM market are required to go through the full stakeholder process including committee structured voting. When PJM was developing capacity market rules they had difficulty receiving member committee authorization. As a result, this dispute was taken to FERC who reviewed it and determined that the capacity market rules should be moved to the tariff which is not voted on by stakeholders.
California	Full consultation	Stakeholders are included in the market rule change process but do not vote, CAISO staff presents the planned initiatives to them. The initiatives does go through the full stakeholder process - CAISO presents a draft proposal, gathers comments, presents a revised proposal, gathers more comments, and then submits a final proposal to the board. Stakeholders can disagree with CAISO and try to gain broad agreement or even go to the board to get something moved up in the prioritization but there is no voting.

Market monitoring is most often completed by a sub-division within the ISO.

Jurisdiction	Description of Compliance Monitoring
Ontario	<p>The IESO's Market Assessment and Compliance Division (MACD) detects and investigates potential breaches of the Ontario wholesale electricity market rules, which incorporate North American reliability standards. It also administers other rules which may result in repayments to the market. The Director of MACD has the authority to issue non-compliance rulings and impose sanctions, including financial penalties, when the rules have been breached. In addition to enforcement of the rules, MACD may issue rule interpretations and other guidance to enable compliance.</p>
Australia	<p>The Australian Energy Regulator (AER) monitors the NEM to ensure participants comply with the underpinning legislation and rules, taking enforcement action when necessary. AER also monitors for irregularities and wider market inefficiencies. The AER published quarterly compliance reports provide that provide updates on compliance and enforcement activity.</p>

OVERVIEW

MARKET COMPLIANCE MONITORING

Jurisdiction	Description
UK	<p>Market monitoring is the responsibility of Ofgem and includes retail market monitoring, issuing retail market reports, conducting consumer research, researching supplier costs and consumer usage.</p> <p>Ofgem has the overall responsibility for monitoring the capacity market and enforcing legislation. It oversees National Grid's delivery of its capacity market roles. Ofgem has the responsibility to resolve disputes that have been brought forward as a result of the escalation process.</p>
NYISO	<p>The Market Monitoring Unit (MMU) which operates under NYISO ensures that the markets administered by NYISO function efficiently and appropriately, and to protect both consumers and participants by identifying and reporting Market Violations, market design flaws and market power abuses.</p> <p>The Market Mitigation and Analysis Department (MMA) is responsible for the implementation of the ISO Market Power Mitigation Measures to assist the ISO's efforts to carry out its Tariff responsibilities, including the ISO's obligation to provide data and support to its MMU.</p>

OVERVIEW

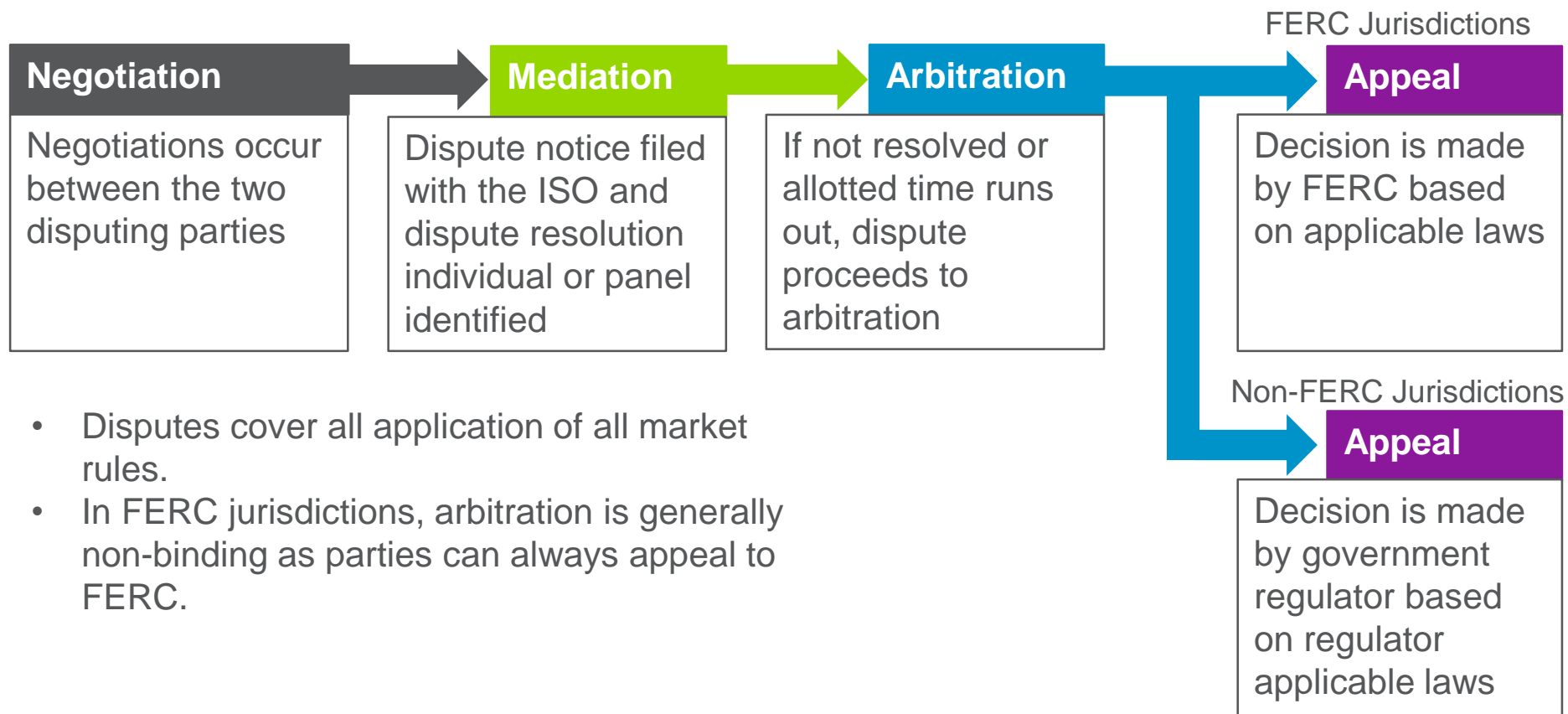
MARKET COMPLIANCE MONITORING

Jurisdiction	Description
PJM	The market monitoring unit (MMU) of PJM has a wide range of responsibilities as established under the Market Monitoring Plan, which was filed in compliance with FERC's order. While the MMU does not have enforcement powers, the Plan does provide the MMU with the authority to take specific corrective actions, as a result of monitoring activities. Monitoring Analytics is an Independent market monitor for PJM. Monitoring Analytics collects data, designs market metrics, tracks participant behavior and market performance, and reports on various other aspects of the PJM market.
CAISO	The ISO Department of Market Monitoring keeps a watch on the efficiency and effectiveness of the ancillary service, congestion management and real-time spot markets. The core functions include – monitoring market performance, assessing market rules and ISO operational practices, conducting market analysis with a focus on market efficiency and investment signals, referring market rule violations to FERC. Potential corrective actions include : tariff and protocol changes, changes to market power mitigation rules and bid caps/floors, and reports to regulatory agencies for possible enforcement actions.

OVERVIEW

GOVERNANCE FOR MANAGING DISPUTES

The governance process for disputes is very similar across jurisdictions. The final step of the process differs between FERC and non-FERC regulated jurisdictions.





ONTARIO

ONTARIO ELECTRICITY MARKET

Ontario's wholesale electricity market was designed in the late 1990s and opened in 2002. Redesign of the electricity market is currently underway through the IESO Market Renewal program.



- Every five minutes, a market clearing price (MCP) is set based on the bids and offers that are settled in the wholesale electricity market
- The Day Ahead market enables dispatchable resources and the economic scheduling of imports in the day-ahead time frame, in return for a financial guarantee
- The IESO also operates the Ancillary services and Operating reserve market
- The IESO's annual Demand Response Auction provides a way to select the most competitive providers of DR

Market Player	Role	Responsibilities
Ministry of Energy	Policy maker	Presides over policy matters relating to energy resources and electric power for the Province of Ontario; can issue policy directives to OEB and IESO; Issues a long term energy plan which provides a roadmap for the provincial electricity system.
Ontario Energy Board (OEB)	Regulator	Regulates IESO, T&D and retail segments, and licenses all market participants; regulates rates of OPG; carries out policy development via proceedings, industry task forces, stakeholder working groups and public consultations
IESO	System Operator	Real-time transmission system operations balancing the supply of and demand for electricity across Ontario. Responsible for dispatch. The IESO is also responsible for long term planning.
IESO	Market Monitor	The IESO's Market Assessment and Compliance Division (MACD) detects and investigates potential breaches of the Ontario wholesale electricity market rules, which incorporate North American reliability standards. It also administers other rules which may result in repayments to the market.

Consumers counterbalance government influence on long-term system planning late in the process, at the ballot box.

Market Player	Role	Description
IESO	Market Operator	Administers the wholesale electricity market; leads Ontario's energy system planning, procurement and conservation efforts as per government directives
Providers	Generation, T&D	Power producers, aggregators, transmission and distribution owners; own, maintain and operate the physical assets
OEB	Consumer Advocate	While Ontario does not have a public consumer advocate, energy consumer organizations are still active in OEB hearings. Power consumers that can influence electricity policy and regulation via stakeholder consultations, as Board intervenors, and through the political process (ballot box); <i>The OEB is developing a process to improve consumer engagement: New Consumer Engagement Framework</i>

ONTARIO GOVERNANCE STRUCTURE

There are a number of sub-panels that govern the Ontario electricity market.

OEB

Market Surveillance Panel

- Monitors efficiency, fairness, transparency and competitiveness of the IESO-administered market

IESO

Board of Directors

- Approves the market rules, policies and guidelines that govern the IESO-administered markets.

Technical Panel

- Reviews market rule amendments and advises IESO Board on technical issues as required

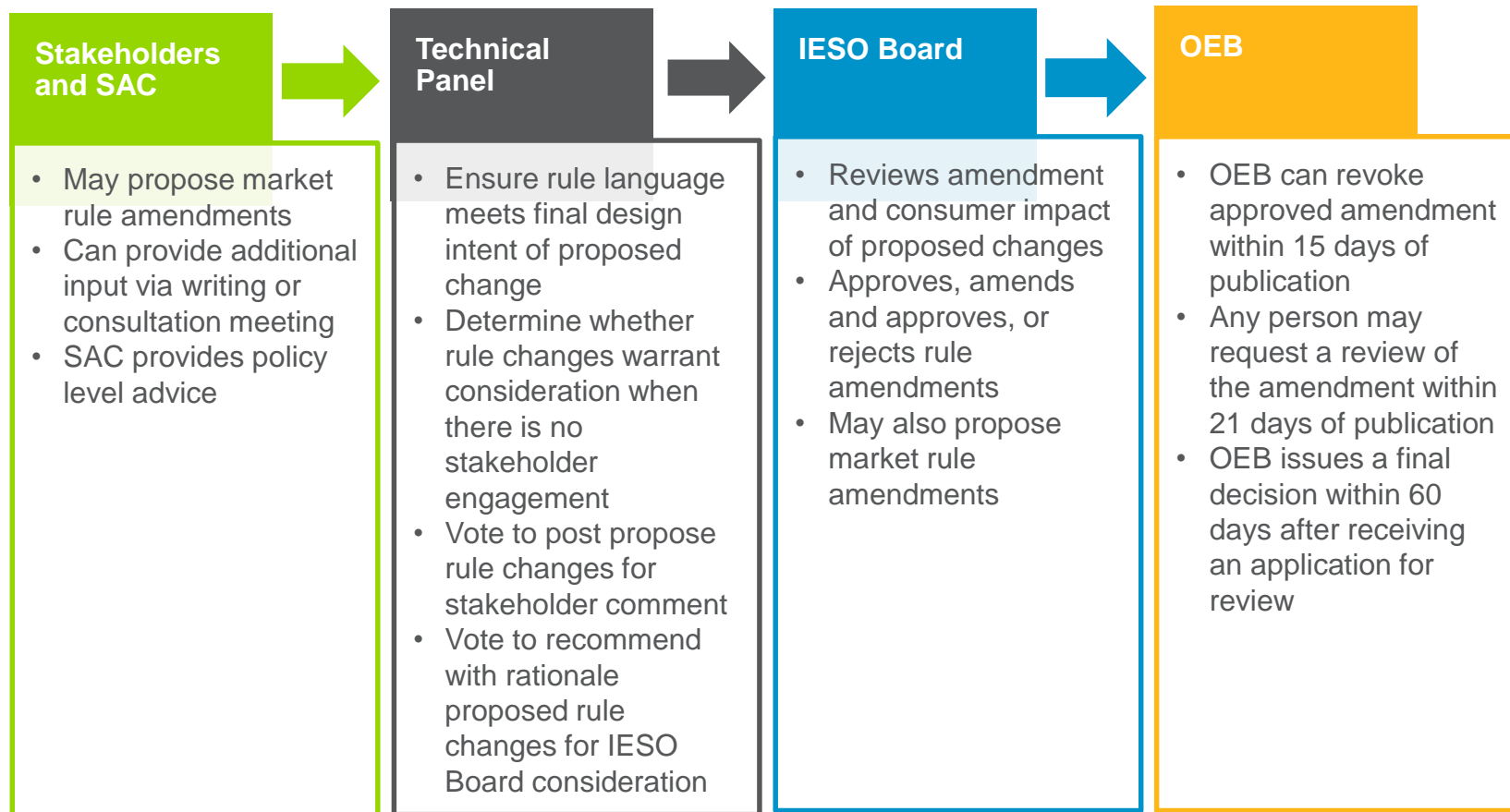
Market Assessment and Compliance Division (MACD)

- Monitors operation of electricity market and market rule compliance with market rules and North American reliability standards

Stakeholder Advisory Committee

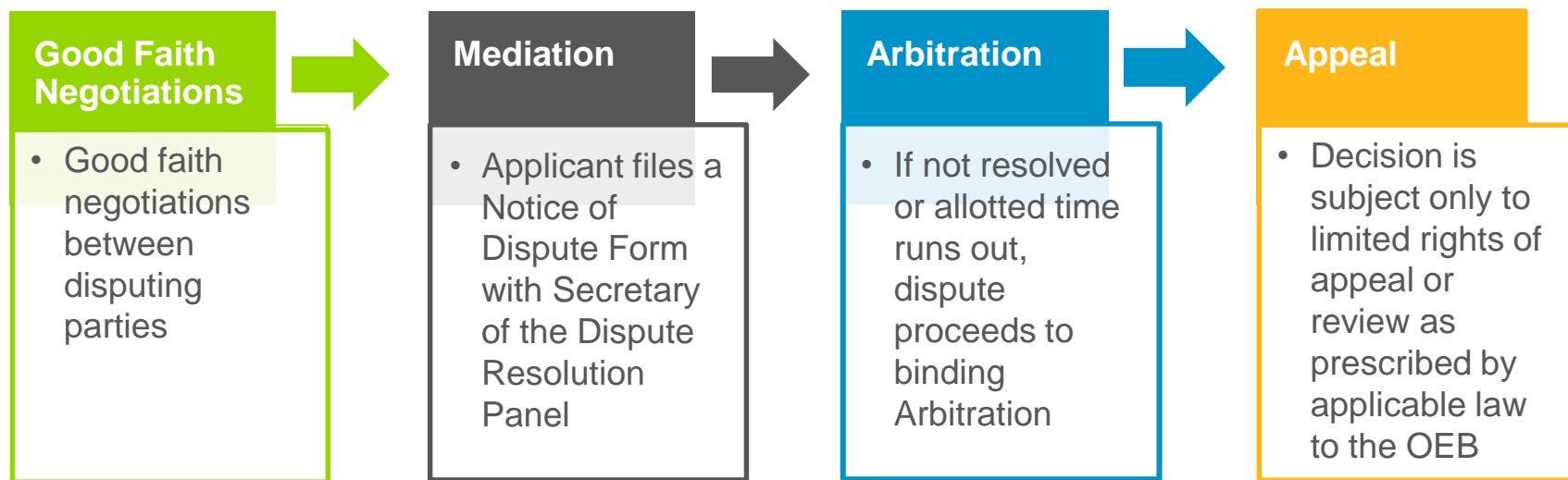
- Forum for stakeholder input on market development, conservation and planning decisions

ONTARIO MARKET RULE CHANGE PROCESS



ONTARIO DISPUTE RESOLUTION PROCESS

Examples of disputes include disagreements with market rules, disagreements between participants and IESO denying authorization or registration to a prospective market participant or service provider



- There are individual dispute resolution frameworks embedded in the power supply contracts between generators and the IESO which generally include good faith negotiations followed by binding arbitration

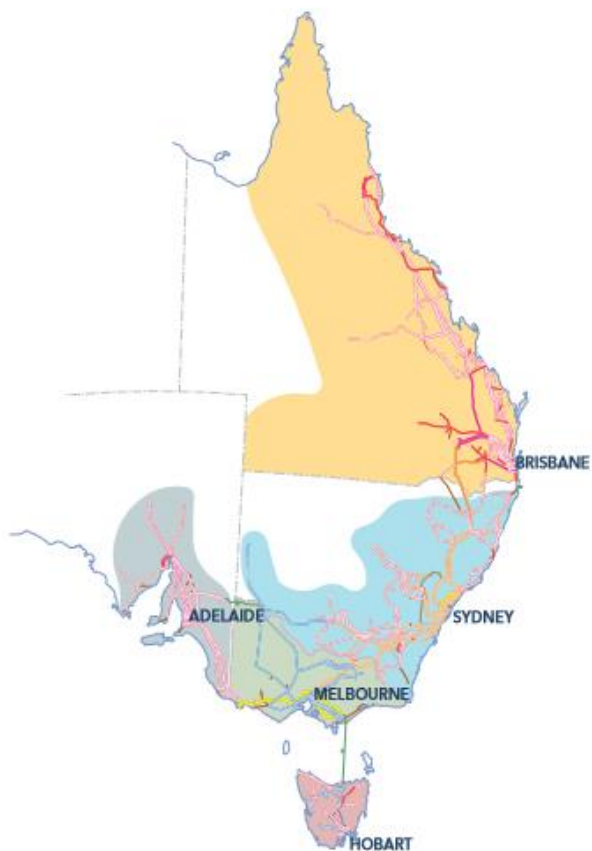


AUSTRALIA

AUSTRALIA

NATIONAL ELECTRICITY MARKET

The National Electricity Market (NEM) is an energy-only market that spans Australia's eastern and south-eastern coasts.



- Five price regions: Queensland, New South Wales (including the Australian Capital Territory), South Australia, Victoria, and Tasmania
- Energy-only market – high price caps
- Mandatory gross pool – large generators must trade through AEMO
- Self-commitment – no cross-temporal optimization, no start-up or shut down payments
- Co-optimized energy, security and ancillary service
- Dispatch and pricing every five minutes
- Settlements based on 30-minute periods

AUSTRALIA

AGENCY & GOVERNANCE STRUCTURE

Australia has a separate body, the AEMC, for developing market rules.

Market Player	Role	Role Description
Council of Australian Government Energy Council (COAG Energy Council)	Government	Provides broad policy direction, national oversight and coordination of governance, and program management
Australian Energy Market Commission (AEMC)	Rule Maker	Responsible for rule making and market development; manages rule change requests; does not propose material rule changes; provides market development advice to government
Australian Energy Regulator (AER)	Regulator	Oversees economic regulation of T&D networks, monitors markets and enforces compliance with rules and legislation
Australian Energy Market Operator (AEMO)	System Operator	Real-time grid system operations balancing the supply of and demand for electricity across NEM; transmission network provider in Victoria

AUSTRALIA

AGENCY & GOVERNANCE STRUCTURE

Market Player	Role	Role Description
Australian Energy Regulator (AER)	Market Monitor	Monitors the NEM to ensure participants comply with the underpinning legislation and rules, taking enforcement action when necessary. AER also monitors for irregularities and wider market inefficiencies. The AER published quarterly compliance reports provide that provide updates on compliance and enforcement activity.
Energy Consumers Australia (ECA)	Consumer Advocate	ECA is a public body established by the Council of Australian Governments (COAG) Energy Council to promote the interests of energy consumers and deliver better outcomes for them.

AUSTRALIA

GOVERNANCE STRUCTURE

Australia's regulator, AER, has a Consumer Challenge Panel to facilitate consideration of the consumer perspective in AER decisions.

Market Player	Role	Role Description
Australian Energy Market Operator (AEMO)	Market Operator	Operators both wholesale and retail markets across the NEM; transmission network planner
Providers	Generation, T&D	Power producers, transmission and distribution providers of electricity; for example, PowerLink, TransGrid, AusGrid, SA Power Networks etc.
Consumers	Consumers	Power consumers that can influence electricity policy and regulation via stakeholder consultations, and consumer panel or advocacy groups

AER

Consumer Challenge Panel

- Provides input and challenge the AER on key consumer issues during a network determination, to improve the AER's decisions

AUSTRALIA

GOVERNANCE STRUCTURE

There are a number of sub-panels that govern Australia's NEM.

AEMC

Reliability Panel

- Develops rules and manages rule change requests;
- Monitors, reviews and reports on the safety, security and reliability of the national electricity system

AEMO

NEM Wholesale Consultative Forum

Settlement Residue Committee

Settlement Managers Working Group

Energy Consumers Australia

- Forum for stakeholder input on developing and improving the NEM
- Responsible for reporting and approving rule changes on settlement residue auctions in the NEM
- Forum for stakeholder engagement on market settlement and prudential matters
- Promotes the long term interests of consumers of energy with respect to the price, quality, safety, reliability and security

AUSTRALIA

MARKET RULE CHANGE PROCESS

The National Electricity Rule Change Process

Initiation

- Can be requested by any stakeholder – AEMO, AER, Supplier
- Initial consideration by AEMC of the request for change to rule

Consultation

- Public consultation on a proposed Rule begins
- Draft of rule change request published and feedback requested from stakeholders
- Optional Public hearing held before draft rule determination

Draft rule determination

- AEMC publishes a draft rule determination
- This contains AEMC's reasons as to whether the proposed draft rule will be made
- Any person is invited to provide written submission to the proposed rule
- A public hearing is held and the rule may be revised if needed

Final rule determination

- AEMC publishes final rule determination
- Reasons for making amendments to the rule
- Rule is amended and amendment announced publicly by AEMC
- Amending rule is consolidated into a new version of the rules when the amending rule commences operation

AUSTRALIA

DISPUTE RESOLUTION PROCESS

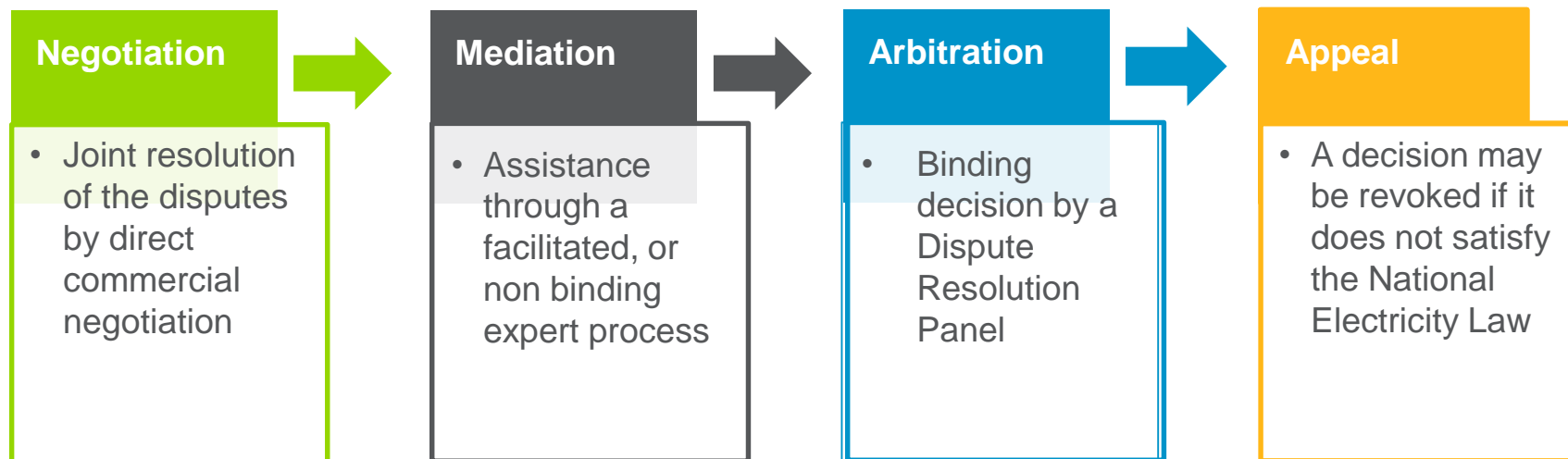
Australia has an urgent rule change and dispute resolution process similar to Ontario.

National Electricity “Fast Track” Rule Change

- Request by an electricity market **regulatory body** (such as AEMO)
- One round of public consultation
- Decided by the AEMC

Dispute Resolution Process

- AER appoints a Wholesale Energy Market Dispute Resolution Adviser to facilitate and guide the process



AUSTRALIA

GOVERNANCE REVIEW

The COAG Energy Council initiated a governance review of the Australian energy market five years after establishing AEMO in 2009.¹

- Concluded that the division of functions of current governance arrangements remains appropriate for serving the purposes of the Australian Energy Market Agreement and serving the relevant national objectives
- Recommendations:
 - Need more **transparency in activities and effective strategic direction** from COAG Energy Council
 - Stakeholder engagement should **avoid duplication in consultation** and should have **greater visibility** of agenda issues
 - COAG Energy Council should **not assign policy-related tasks to AEMO**, but that the expertise of AEMO be accessed through consultation by the AEMC
 - Changing energy governance arrangements in response to shifts in general policy objectives is an approach that is generally best avoided

¹ COAG.Review of Governance Arrangements for Australian Energy Markets. July 2015.

<http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/Review%20of%20Governance%20Arrangements%20for%20Australian%20Energy%20Markets%20-%20Draft%20Report.pdf>



UNITED
KINGDOM

UNITED KINGDOM ELECTRICITY MARKET

The Electricity Market Reform was implemented in 2013 to incentivize investment in secure, low-carbon electricity, improve security of electricity supply and improve affordability.

Electricity Distribution



Electricity Transmission



- Electricity distribution networks are regional grids, branching from national grids
- Electricity Market Reform: Capacity Market, Contract for Difference
- Outcome-based RII model: Revenue = Incentives + Innovation + Output
 - Requires T&D companies to engage with consumers on proposed business plans

UNITED KINGDOM

AGENCY & GOVERNANCE STRUCTURE

Market Player	Role	Role Description
Department for Business, Energy and Industrial Strategy (DBEIS)	Government	Sets overall policy direction and sets out key parameters for Electricity Market Reform (EMR);
Gas and Electricity Markets Authority (GEMA)	Regulator	Determines strategy, sets policy priorities and takes decisions on a range of matters, including price controls and enforcement; regulates the gas and electricity market;
Office of Gas and Electricity Markets of Great Britain (Ofgem)	Regulator	Aimed at protecting interests of electricity and gas consumers; issues licenses to market participants; owns and manages capacity market rules ; dispute resolution role between NGET and capacity market participants
Agency for Cooperation of Energy Regulators (ACER)	Regulator	Ensures market integration and regulatory framework harmonisation in EU energy market to enhance competition; monitors Europe's third party exchange

Market Player	Role	Role Description
National Grid Electricity Transmission (NGET)	System operator	Manages the operations of both the England and Wales transmission system; Responsible for Electricity Market Reform delivery
ELEXON	System Operator/ Balancing Authority	Facilitates the effective delivery, implementation, operation and development of the electricity trading arrangements; administers the Balancing and Settlement Code
EPEX Spot UK	Market Operator	Operates the day-ahead and intra-day markets
Providers	Generation, T&D, Retailers (Suppliers)	The “Big Six” suppliers / generators, independent power producers, Distribution Network operators who distribute electricity in fourteen regions throughout Great Britain; Transmission Network Operators, licensed to transmit electricity

AGENCY & GOVERNANCE STRUCTURE

Market Player	Role	Role Description
Ofgem's Consumer Challenge Group	Consumer Advocate	Power consumers that can influence electricity policy and regulation via consumer consultations with T&D companies, and consumer panels
Ofgem	Market Monitor	Monitors and publishes reports on the energy markets to enable transparency for consumers, market participants and other interested parties. Periodic reports published include – domestic energy consumption, supplier costs, consumer research and retail energy market reports

UNITED KINGDOM GOVERNANCE STRUCTURE

There are a number of sub-panels that govern the UK's electricity market.

Ofgem

Future Trade Arrangements Forum

- Reviews market rules and changes; can propose changes

Future Wholesale Markets Project

- Aims to build consensus on principles of Great Britain's electricity trading arrangements and any changes required by changing market and policy framework

Joint European Stakeholder Group

- Aims to look at the effect of recent Ofgem and government reforms on electricity wholesale markets, as well as challenges and opportunities stemming from changes in the generation mix

Balance and Settlement Code (BSC) Panel

- Aims to develop a process for implementation of European Network Codes and other areas of European electricity policy such as infrastructure policy.

- Brings together stakeholders from across the sector, including Ofgem, National Grid, BSC Parties and consumer representatives, focused on ensuring that the BSC is delivered efficiently, economically, effectively, fairly and transparently

UNITED KINGDOM GOVERNANCE STRUCTURE

The UK electricity market is integrated with the EU market, thus requiring a structure which fosters cooperation among European energy regulators.

ACER

Market Monitoring Team

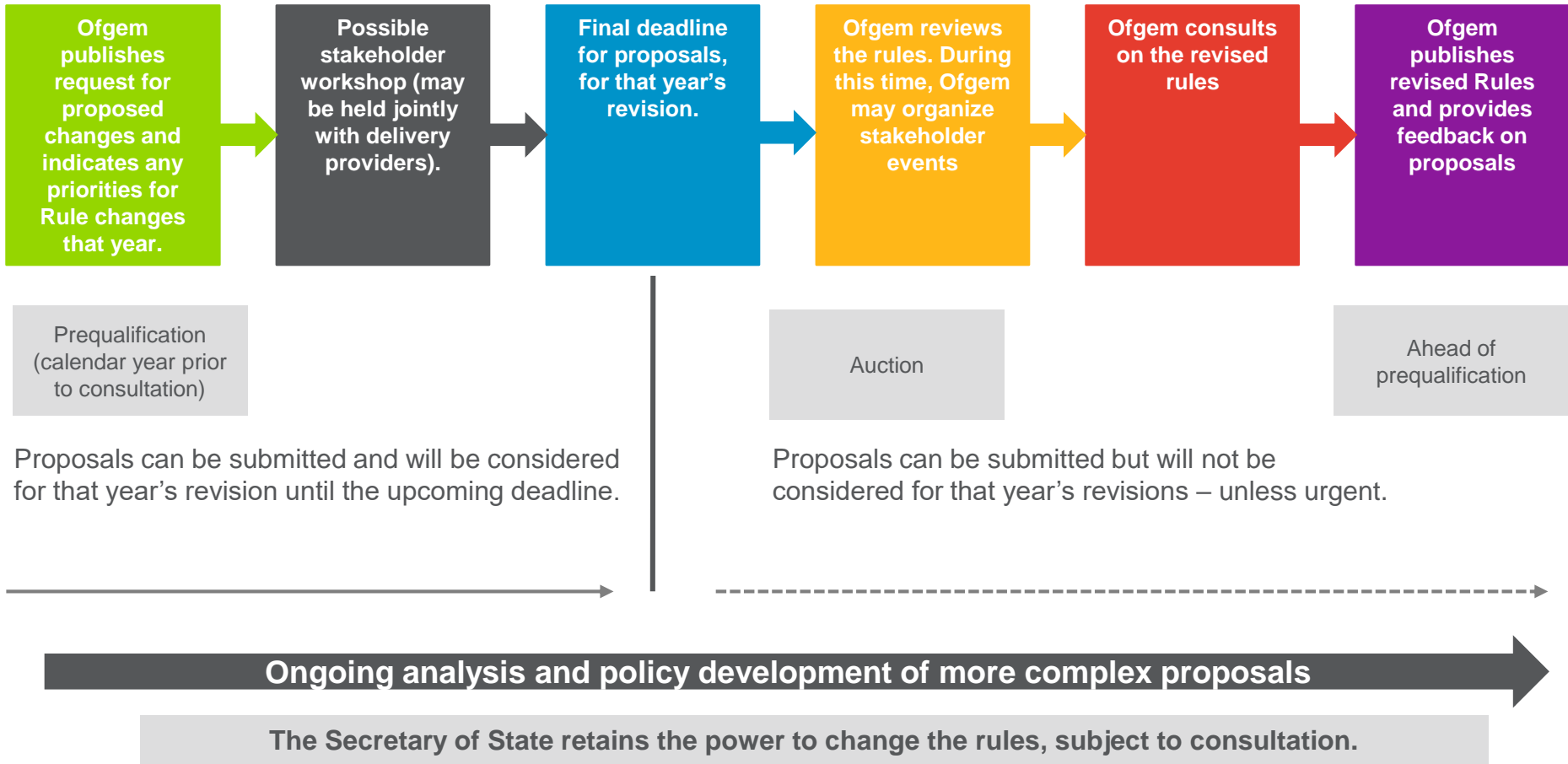
European Stakeholder Committee

- Works closely with the European Commission, National Regulatory Authorities, and other relevant organizations.
- Aims to compare retail market competition in different markets across the EU, with a view to identifying instances of best practice which improve market performance
- Established to inform and consult stakeholders about the requirements in the guidelines/network codes related to grid connection, market and system operation

Wholesale Energy Market Integrity and Transparency (REMIT)

- Introduces a sector-specific legal framework for the monitoring of wholesale energy markets. The objective is to detect and to deter market manipulation.
- ACER will be responsible for collecting and analyzing wholesale markets and other relevant data to identify possible instances of market abuse.
- ACER will notify the National Regulatory Authorities (NRAs) who will carry out investigations

UNITED KINGDOM MARKET RULE CHANGE PROCESS



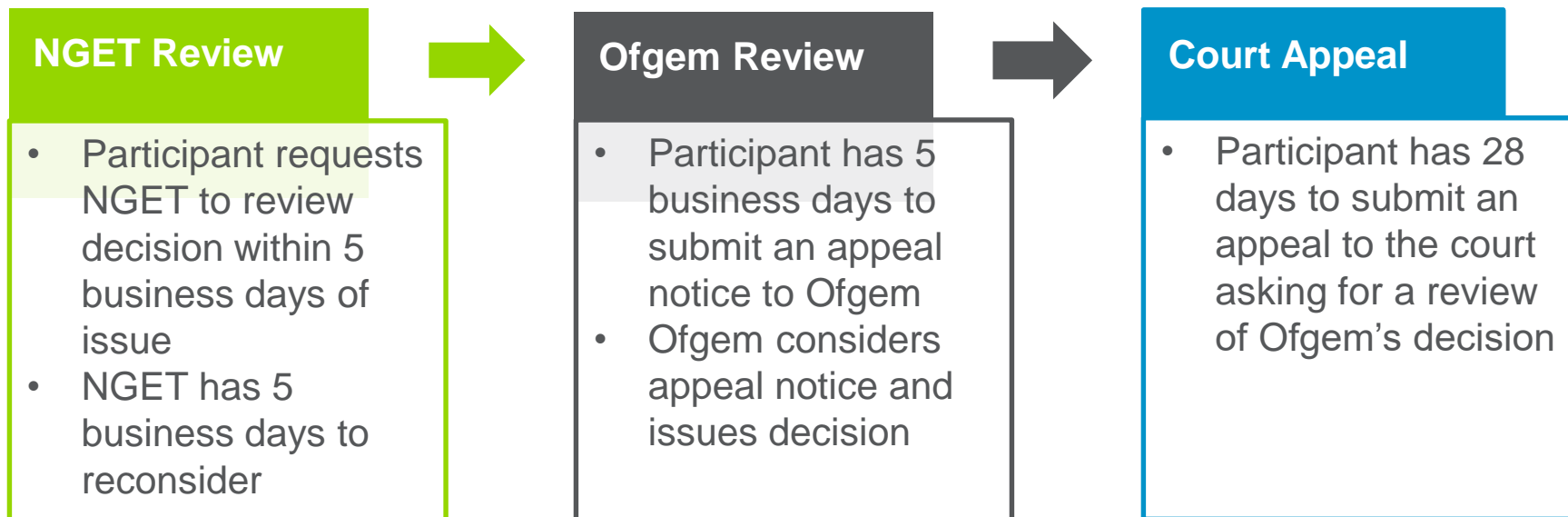
The UK has an urgent rule change and dispute resolution process similar to Ontario.

Urgent Market Rule Change Process

- Linked to imminent or current issue that may:
 - Affect the efficient operation of the capacity market
 - Abuse of market power
 - Unintended adverse effect of a market rule

EMR Dispute Resolution

- Disputes between NGET and market participants



UNITED KINGDOM

GOVERNANCE REVIEW

The CMA conducted a comprehensive energy market investigation and has made recommendations for improving governance and regulatory structure.¹

- Structure and governance of regulatory framework increase the risk of policies being developed that are not in the interest of customers
- Recommendations:
 - Amend primary legislation to clarify Ofgem's statutory objectives and duties and thereby remove any constraint on Ofgem's ability to pursue its principal objective (protecting the interests of existing and future customers) by promoting effective competition where it considers this appropriate
 - Legislation should establish a clear process requiring Ofgem to publish opinions on all draft legislation and policy proposals relevant to its statutory objectives that are likely to have a material impact on the energy markets
 - DBEIS (previously DECC) and Ofgem should publish detailed joint statements setting out action plans for the implementation of proposed policy objectives that will require Ofgem interventions

¹ CMA. June 2016. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/531157/Energy-final-report-summary.pdf



NEW YORK

NEW YORK ELECTRICITY MARKET

New York has an energy market with reserve requirements and a centralized capacity market.



- Settles day-ahead, hour-ahead and real-time market
- Generating Capacity: 39,039 MW
- Transmission Lines: 17,841 km
- NY REV – Reforming the Energy Vision initiative launched in 2014
- Centers around distributors becoming Distributed System Platform providers
 - Market operations
 - Grid operations
 - Integrated system planning

AGENCY & GOVERNANCE STRUCTURE

New York's REV initiative is an effort initiated by Governor Cuomo in the State Energy Plan.

Market Player	Role	Role Description
New York Department of Public Service	Government	Sets overall policy direction through the State Energy Plan and Reforming the Energy Vision (REV) initiative.
Federal Energy Regulatory Commission (FERC)	Regulator	Regulates the interstate transmission of electricity; reviews electricity company M&As, transmission planning and cost allocation; ensures compliance with reliability standards; developing industry best practices and guidelines.
New York Public Service Commission (NYPSC)	Regulator	Oversees economic regulation of state T&D networks; promotes competitive power markets where viable; ensures equitable rates and high-quality service.
NYISO	System Operator	Operates New York's transmission network.

Consumers in New York are engaged through various initiatives and consumer councils.

Market Player	Role	Role Description
NYISO	Market Operator	Operates the wholesale power markets that trade electricity, capacity, transmission congestion contracts, and related products, in addition to administering auctions for the sale of capacity; long-term system planning.
Market Monitoring Unit (MMU)	Market Monitor	MMU of the NYISO ensures that the markets administered by NYISO function efficiently and appropriately, and to protect both consumers and participants by identifying and reporting Market Violations, market design flaws and market power abuses.
NY Energy Consumers Council, NYISO's Consumer Interest Liaison, Advisory Council	Consumer Advocate	Power consumers that can influence electricity policy and regulation via customer engagement initiatives, consumer representatives.

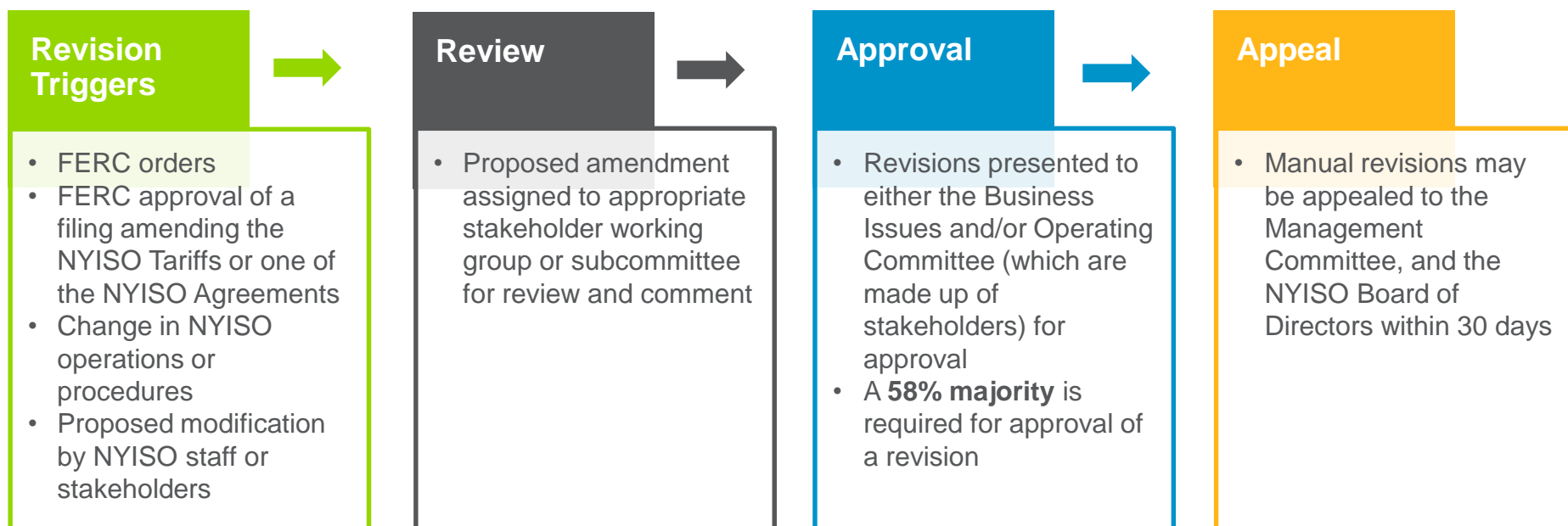
NEW YORK GOVERNANCE STRUCTURE

NYISO's Shared Governance structure allows stakeholders from various market sectors to have oversight responsibilities of the NYISO through committees.



NEW YORK MARKET RULE CHANGES

A market rule change requires approval by either the business issues or operating committee.



The Governance process provides stakeholders the opportunity to participate in a forum where issues regarding the operation, implementation, and future of the NYISO markets are discussed, debated, and voted on.

NEW YORK DISPUTE RESOLUTION PROCESS

The Dispute Resolution Process

- Designated Dispute Resolution Administrator (DRA)

Internal Dispute Resolution

- Dispute presented directly to a senior representative of each party on an informal basis

Non-Binding Mediation

- DRA may submit disputes mediation where subject matter involves proposed change or modification of a service agreement or ISO Services Tariff provision

Arbitration

- DRA may submit disputes to binding arbitration if it involves interpreting a service agreement or ISO Services Tariff provision

Appeal

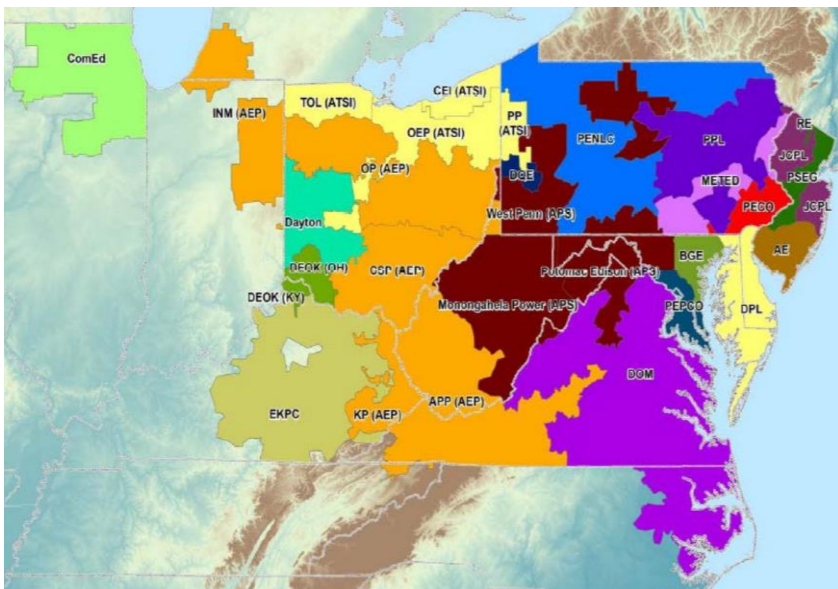
- Within one year of arbitration decision, a party may request that FERC or any other appropriate jurisdictional federal or New York State regulatory or judicial authority review a decision



PJM
INTERCONNECTION

PJM INTERCONNECTION ELECTRICITY MARKET

The PJM Interconnection operates a competitive wholesale electricity market and manages the reliability of its transmission grid



- PJM operates in all or part of 13 states (Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia and West Virginia) and the District of Columbia
- PJM's markets include energy (day-ahead and real-time), capacity and ancillary services
- PJM's capacity market procures power supply resources (through auctions) needed to meet predicted energy demand three years in the future

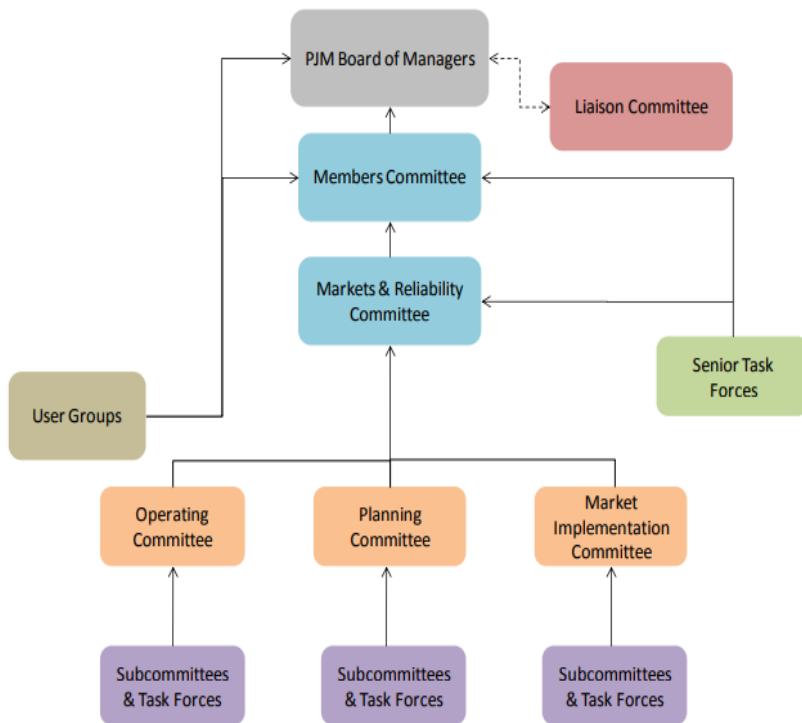
GOVERNANCE STRUCTURE

Market Player	Role	Role Description
Agencies in respective jurisdictions	Policy Maker	Each state jurisdiction mentioned in the previous slide has a dedicated department or division of the state government that supports Energy policy development.
Federal Energy Regulatory Commission (FERC)	Regulator	Regulates the interstate transmission of electricity; reviews electricity company M&As, transmission planning and cost allocation; ensures compliance with reliability standards; developing industry best practices and guidelines.
PJM – ISO	System Operator	PJM Interconnection LLC (PJM) is a regional transmission organization (RTO). It is part of the Eastern Interconnection grid operating an electric transmission system serving all or parts of the states mentioned in the previous slide

Market Player	Role	Role Description
Market Monitoring Unit (MMU)	Market Monitor	The MMU of PJM monitors the activities of participants in the PJM power exchange for the potential exercise of market power, monitors all bilateral and other electric power transactions, and monitors participants for their compliance with the rules, standards, procedures, and practices of PJM.
Monitoring Analytics	Market Monitor	Monitoring Analytics is an Independent market monitor for PJM. Monitoring Analytics collects data, designs market metrics, tracks participant behavior and market performance, and reports on various other aspects of the PJM market.
Agencies respective jurisdictions	Consumer Advocate	Each state in the PJM territory mandates an agency to be the customer advocate for its region.

PJM GOVERNANCE STRUCTURE

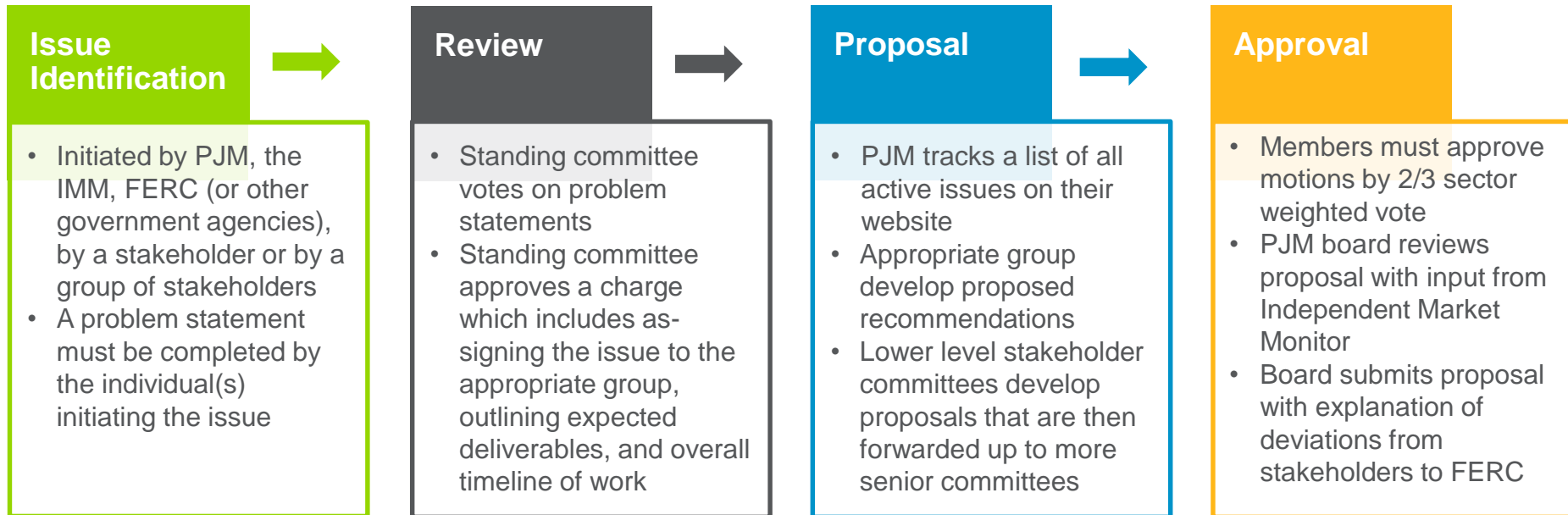
PJM has a two-tiered governance structure: the PJM Board and the Members Committee



- Members Committee and the Markets and Reliability Committee are identified as Senior Standing Committees, with the Markets and Reliability Committee reporting to the Members Committee
- Members Committee provides advice and recommendations to PJM on all matters relating to:
 - Safe and reliable operation of the PJM grid
 - Creation and operation of a robust, competitive and non-discriminatory electric power market
 - Ensuring there is no undue influence over PJM's operations by any member or group of members
- Three Standing Committees are identified as reporting to the Markets and Reliability Committee: the Operating Committee, the Planning Committee and the Market Implementation Committee

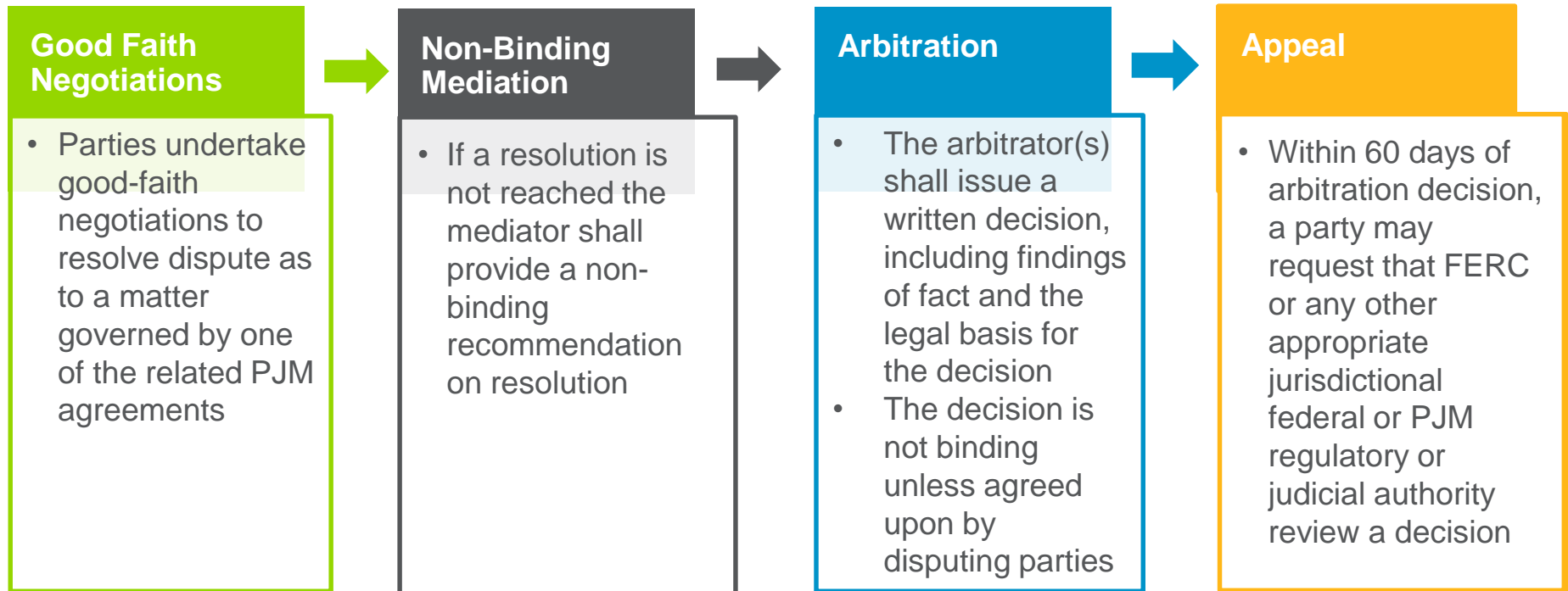
MARKET RULE CHANGE PROCESS

Any changes made to the market rules go through the full stakeholder process including committee structured voting



DISPUTE RESOLUTION PROCESSES

The Dispute Resolution process is intended to establish common and uniform procedures for resolving disputes arising under the related PJM agreements.





CALIFORNIA

CALIFORNIA ELECTRICITY MARKET

The California Independent System Operator (CAISO) operates a competitive wholesale electricity market



- CAISO's markets include energy (day-ahead and real-time), ancillary services, and congestion revenue rights. CAISO also operates an Energy Imbalance Market (EIM), which currently includes PacifiCorp's two balancing authority areas
- The Power Exchange opened in 1998 and ceased operation in 2001 due to a flawed deregulation plan that capped retail charges to customers while utilities paid market rates to wholesale suppliers. Power trading market has not re-opened since
- Trading market for Renewable Energy Certificates exists

CALIFORNIA GOVERNANCE STRUCTURE

Market Player	Role	Role Description
California Energy Commission (CEC)	Policy Maker	State's primary energy policy and planning agency. The CEC has seven core responsibilities: advancing state energy policy, achieving energy efficiency, certifying thermal power plants, investing in Energy innovation, transforming transportation, developing renewable energy and preparing for energy emergencies.
FERC	Regulator	FERC Regulates the interstate transmission of electricity; reviews electricity company M&As, transmission planning and cost allocation; ensures compliance with reliability standards; developing industry best practices and guidelines.
California Public Utilities Commission (CPUC)	Regulator	CPUC regulates privately owned public utilities in the state of California, including electric power, telecommunications, natural gas and water companies. In addition, the CPUC regulates common carriers, including household goods movers, passenger transportation companies and rail crossing safety.

CALIFORNIA GOVERNANCE STRUCTURE

Market Player	Role	Role Description
CAISO	System Operator	Oversees the operation of California's bulk electric power system, transmission lines, and electricity market generated and transmitted by its member utilities
CAISO	Market Monitor	The ISO Department of Market Monitoring (DMM) keeps a watch on the efficiency and effectiveness of the ancillary service, congestion management and real-time spot markets. Works closely with the ISO Market Surveillance Committee.
Office of Ratepayer Advocates (ORA)	Consumer Advocate	The ORA is the independent consumer advocate within the CPUC. ORA has a mandate to represent the interests of utility customers within the jurisdiction of the CPUC to obtain the lowest possible rate for service consistent with reliable and safe service levels. ORA also advocates for customer and environmental protections.

CALIFORNIA GOVERNANCE STRUCTURE

There are a number of organizations that govern the California electricity market.

California Energy Commission

Commissioners

- Commissioners represent: law, environment, economics, science/engineering, and the public at large; oversee CEC's operations and commitments.

CAISO

Board of Governors

- Reviews and approves the annual ISO budget, shapes policies and approves grid planning and market design changes

Audit Committee

- Oversight of ISO financial statements, compliance with legal and regulatory requirements.

Market Surveillance Committee

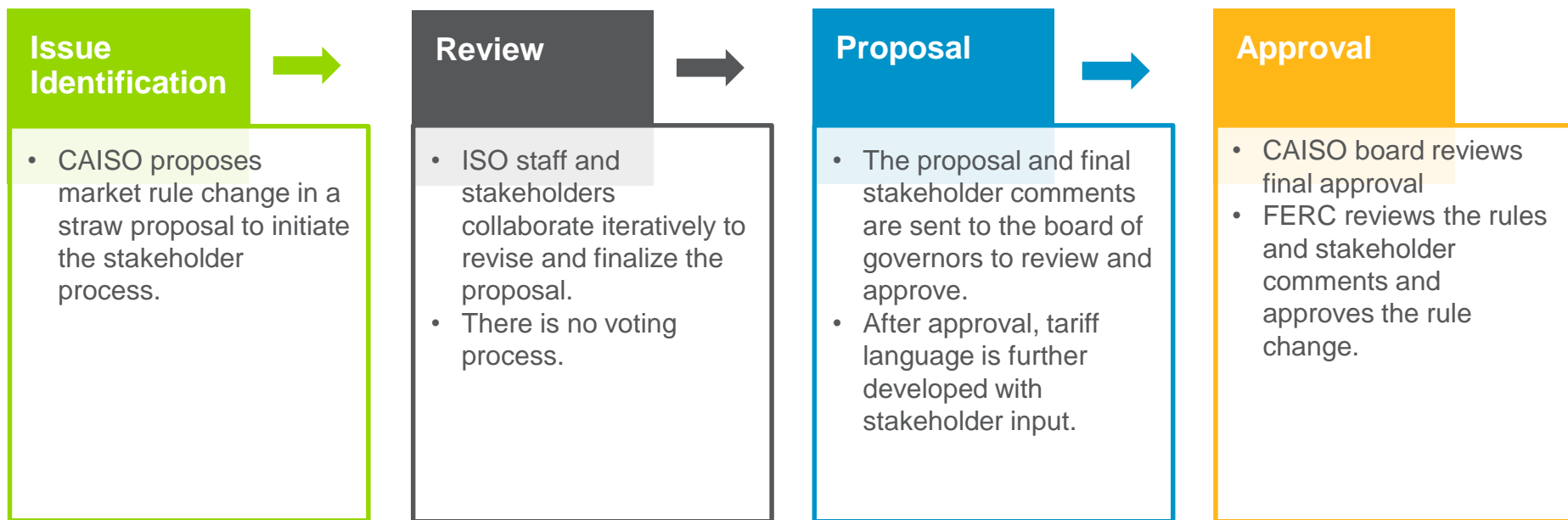
- Provides comments, critiques and recommendations about the ISO market monitoring process and a other market issues. **Independent advisory group** of industry experts.

Market Monitoring Oversight Committee

- Assist the Board in its oversight of market monitoring functions, as defined in the ISO tariff and FERC regulations

CALIFORNIA MARKET RULE CHANGE PROCESS

CAISO goes through a collaborative process with stakeholders to initiate and finalize market rule changes.



CALIFORNIA DISPUTE RESOLUTION PROCESS

The ADR/Audit Committee has responsibility to oversee the process for Alternative Dispute Resolution (ADR)

