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Original research article

# Electricity governance and the Western energy imbalance market in the United States: The necessity of interorganizational collaboration

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## ABSTRACT

In the Western United States, widespread growth of wind and solar resources is putting pressure on state policy makers, electricity system operators, and utilities to integrate renewable resources into the grid, while maintaining reliability, affordability, and improving efficiency. These resources are creating new challenges because their variability can contribute to transmission constraints and system imbalances. This paper examines a recent initiative to make energy imbalance market services available throughout the Western Interconnection and provides insight into evolving electricity system governance. Drawing on boundary organization and interorganizational collaboration literature, this research explores the processes and practices used to create a new interorganizational collaboration. The research supports theoretical claims that facilitating policy innovation requires discursive formation of a collective identity.

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## 1. Introduction

In many countries the widespread growth of wind and solar electric generation is changing how electricity systems are planned and operated. Policymakers, planners, and grid operators seek to integrate variable renewable resources while maintaining system reliability and affordability. These actors need to innovate organizationally to advance both regional integration and decarbonization, which can be difficult [1,2]. At base, these challenges are ones of governance, and approaches to meeting them have varied across countries and regions in Europe, Asia, and the Middle East and North Africa [3–10]. This study of an innovative approach in the Western United States provides insight into these regional governance challenges.

In the United States more than 64 GW of wind and 10 GW of solar capacity accounted for 7% of net summer capacity [11]. The variability of these renewable resources can contribute to transmission constraints and system imbalances. In response to this variability, in the short term, grid operators can ramp up flexible resources, if available, or curtail wind generator production to reduce output. In

the longer term, they can expand the system's geographic footprint, develop more flexible resources, or build additional transmission capacity. As renewable resources have become a larger part of the system, curtailments of wind and solar have increased. For example, in recent years some regions have curtailed from 1 to 4% of wind generation while Texas curtailed as much as 17% of wind generation [12]. Resource curtailment affects the economics of wind and solar development and can stymie progress toward policy goals.

This situation is not unique to the United States, and worldwide many different organizations are evolving new and innovative approaches to better integrate renewable energy into electricity systems [13]. However, in the United States, multiple overlapping jurisdictions, legacy operations, and fractured electricity system governance have made wind and solar integration especially challenging. Historically, the U.S. electricity system has been "highly balkanized relative to most other countries" [14]. While state or regional electricity markets now coordinate 70% of wholesale electricity trades [15], across the western states, energy federalism continues to shape decentralized decision-making and coordination has often been fractious. For example, while most of California participates in a wholesale energy market operated by the Cal-

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ifornia Independent System Operator (CAISO),<sup>1</sup> the rest of the Western Interconnection<sup>2</sup> has opposed joining federally authorized regional transmission organizations (RTOs) like CAISO and is managed through 37 other balancing authorities.<sup>2</sup> The balancing authorities are traditionally regulated and lack dynamic mechanisms to respond to energy imbalances or congestion. Within this institutionally and jurisdictionally complex system, policies and market designs determine the mix of generating resources, location of transmission assets, whether conventional or renewable resources are curtailed, and the extent to which alternative tools for maintaining system balance are available.

The expansion of renewable resources in the Western United States has, in turn, increased pressure on utilities and energy system planners to improve renewable resource integration while maintaining reliability, affordability, and improving system efficiencies. State renewable energy policy goals, coupled with decreasing costs of renewable technologies, have supported the installation of approximately 75 GW of wind and solar across the West [16]. It has also led some industry leaders and policy makers in the West to explore new approaches for regional electricity system governance. In the Western Interconnection, expansion of regional electricity markets would increase efficiency, reduce current and anticipated curtailments, and facilitate renewable resource integration through automated economic dispatch and access to larger geographic regions [17–24]. However, regionalization will alter the distribution of benefits and burdens among stakeholders and the political and institutional challenges require more coordination, policy innovation, and new institutional paradigms of electricity system governance.

The recent CAISO initiative to make energy imbalance market (EIM) services available to balancing authorities throughout the Western Interconnection is changing electricity system governance in critical ways. Typically Western balancing authorities have relied on bilateral electricity contracts instead of real-time energy markets. The EIM will extend the real-time energy market outside of California while allowing Western-balancing authorities to maintain a level of autonomy from Federal Energy Regulatory Commission (FERC) jurisdiction and the CAISO market. The EIM provides participating balancing authorities and CAISO with greater efficiency and flexibility through real-time automated and economic dispatch, improved communications, increased system visibility, access to additional flexible reserves, and sharing of resources. Expansion of the EIM to PacifiCorp, the first balancing authority to participate, started live operation on November 1, 2014. NV Energy began participating in December 2015 and Puget Sound Electric and Arizona Public Service Company signed agreements to join in 2016 (Fig. 1).<sup>3</sup> However, important questions of long-term EIM governance remain.

The EIM is being implemented through a newly emerging interorganizational collaboration among CAISO, incumbent CAISO stakeholders, new EIM participants, and other entities in the Western Interconnection. An interorganizational collaboration is a distinct organizational form in which members organize around social problems or opportunities for innovation to leverage difference in knowledge, skills, or resources and to accomplish objectives that could not be realized alone [25–27]. The emerging EIM governance structure is a particular type of interorganizational collaboration, referred to as a boundary organization, in which policy

and technical-scientific domains co-mingle [28,29], and the multiple tensions among diverse stakeholders are negotiated through a dynamic process of continuous negotiation [28].

A fundamental issue for boundary organizations that rely on voluntary participation is how to achieve collective action. CAISO is extending its market infrastructure, but participation in the EIM is voluntary. CAISO must engage with and be responsive to stakeholders and delegation of CAISO authority is a central implementation question. The nature of the EIM depends on the interaction among incumbent and new stakeholders and their willingness to participate in collective action. Interorganizational collaboration literature suggests that collective identity can motivate collective action because it provides a rationale for cooperation and creates the legitimacy needed to enable action [25]. Collective identity is particularly important for collective action in voluntary collaborations where hierarchical and economic authority is limited [25,26].

Traditional research on boundary organizations and collective identity often conceptualizes interactions as seeking lasting stability among stakeholder demands [27–30] and identity as forming around central, enduring, and distinctive attributes [31]. However, given the pressing need for energy governance arrangements to be dynamic, rather than static [32], the contingency of technological development [33], and our interest in the process of governance transition in the Western Interconnection, we draw on a growing literature that focuses on the tension and fluidity in both collective identity and boundary organizing [25,26,34–36]. This literature is grounded in a discursive perspective, which focuses on how collective identity is produced and reproduced through conversations, recognizes the contextual and temporal nature of boundary organizing, shifts attention from assessing beliefs, and allows the researcher to focus on how change occurs in practice. Furthermore, our approach and findings directly address some of the “most promising avenues” as identified by Sovacool: communication and persuasion, geography and scale, and institutions and energy governance. In particular, by examining a newly emerging governance structure this study contributes to answering, How “have the central principles of governing energy shifted?” [37].

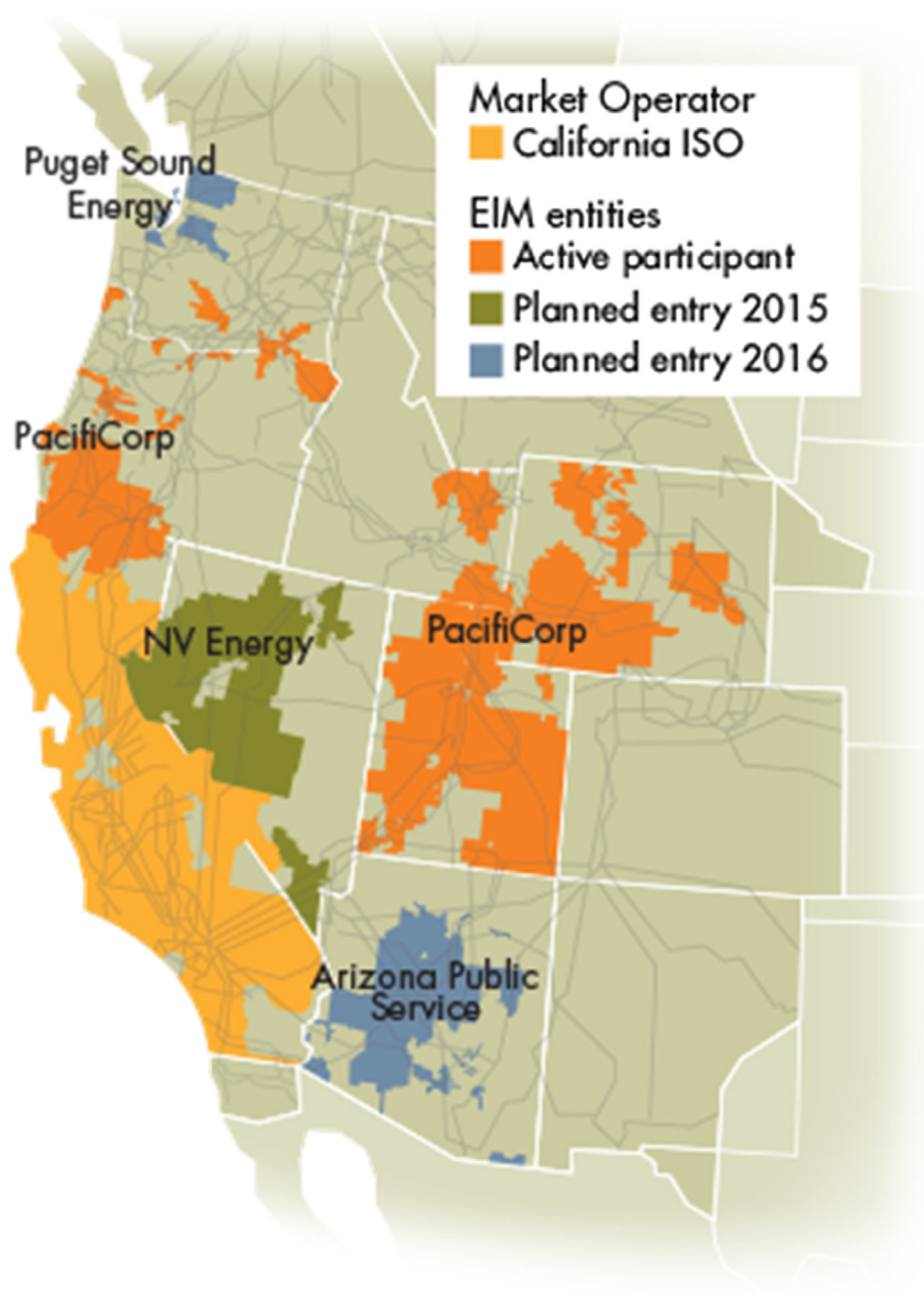
The purpose of this study is to conceptualize the context of evolving electricity system governance in the Western United States using a model of discourse and collaboration as a theoretical framework for explanation. We develop a longitudinal case study of the formation of the EIM Transitional Committee. This committee is an initial and temporary governance structure for the EIM. Using document analysis, interviews and field observations we explain the boundaries that contributed to the previous lack of organized markets in the Western Interconnection and we trace the emergence of the EIM Transitional Committee and a new collective identity.

This study extends the literature on collective identity and interorganizational collaboration to the context of boundary organizations by demonstrating how discursive practices and strategies can constitute the collective identity of an emerging boundary organization. This study demonstrates how discursive practices that maintain a space for both agreement and dissent contribute to formation of a dynamic collective identity. Furthermore, this study demonstrates how the discursive strategy of abstraction can be used to normalize dissensus and thereby, allow a collective identity to form by orienting stakeholders to diverse understandings of an issue and preserving participation of multiple voices. Finally, this study explains the tensions in the Western Interconnection that prevented previous efforts to introduce organized markets from succeeding, how the growth of renewable resources has put pressure on legacy governance institutions, and the strategies that have contributed to change.

<sup>1</sup> List of Acronyms: CAISO—California Independent System Operator; EIM—Energy Imbalance Market; FERC—Federal Energy Regulatory Commission; PUC—Public Utility Commission; RTO—Regional Transmission Organization.

<sup>2</sup> For definition see Table 1.

<sup>3</sup> In November 2015 and in April 2016, Portland General Electric and Idaho Power, respectively, announced their intent to join CAISO's Energy Imbalance Market.



**Fig. 1.** Energy imbalance market participating balancing authorities.

Source: CAISO, 2015; <http://www.caiso.com/informed/Pages/CleanGrid/EIMOverview.aspx>.

The next section provides background on electricity governance, the role of CAISO, and the basic concept for the EIM. Section 3 reviews the boundary organization and interorganizational collaboration literature that provide the analytical framework for our analysis. Section 4 describes our case study methods and data. Section 5 presents the details of our case and findings. Finally, Section 6 provides a discussion and conclusions.

## 2. Background

The integration of renewable resources is a challenge to grid operators throughout the world [3–8], with no one-size-fits-all solution [4]. Integration requires grid operators to change how

resources are dispatched and balanced. This is more efficient across larger geographic regions and regions with non-correlated variable resources [17–24]. In the Western United States renewable resource integration has proven especially challenging because the Western Interconnection is connected through sub-regional balancing authorities, planning organizations, and bilateral contracts, but it lacks the type of regional electricity system governance for the transmission grid that is provided in other parts of the United States by RTOs (Table 1).

In 1996 FERC authorized independent system operators (ISOs) and later, regional transmission organizations to facilitate market competition while maintaining grid reliability and streamlining

**Table 1**  
Western Interconnection Electricity Regulatory and Planning Organizations.

Scale	Organization	Authority or Purpose
Federal	Federal Energy Regulatory Commission	Oversight of interstate transmission lines through tariffs establishing ISO, RTO, and open-access transmission tariffs (OATT) with transmission owners
	North American Electric Reliability Corporation	Oversight of mandatory reliability standards
Regional	Western Electricity Coordinating Council	Sets mandatory reliability standards for the Western Interconnect and reports to the North American Electric Reliability Corporation
	Western Interstate Energy Board	Promotes cooperation among 11 western states and three Canadian provinces and authorized through the Western Interstate Nuclear Compact
	Public Utilities Commission – Energy Imbalance Group	Formed by the State Provincial Steering Committee (SPSC) of the Western Interstate Energy Board (WIEB) to convene discussions about a Western energy imbalance market among energy regulators, electric utilities, research entities, non-profit organizations, and other regional stakeholders
State	CAISO Board of Governors	Oversight from a five-member board appointed by the Governor of California and confirmed by the state senate
	Public Utilities Commissions	Regulatory authority for investor-owned utilities
	State Energy Offices	Policy and planning responsibilities; for example, the California Energy Commission produces a biannual Integrated Energy Policy Report that includes 10-year peak and energy demand forecasts that are used by the CPUC and CAISO for transmission planning
Sub-Regional	Balancing Authorities	<p>Thirty-eight entities in the Western Interconnect responsible for real time balancing of electricity supply and demand</p> <ul style="list-style-type: none"> <li>✓ CAISO = authorized by FERC tariff and California statute and the largest balancing authority in the Western Interconnect</li> </ul>
		<ul style="list-style-type: none"> <li>✓ Bonneville Power Administration, Western Power Administration, Balancing Authority of Northern California, investor-owned utilities, and publicly-owned utilities</li> </ul>
	Sub-Regional Transmission Planning Groups	<p>Eight sub-regional planning groups (SPGs) formed voluntarily by utilities to coordinate transmission and distribution planning</p> <ul style="list-style-type: none"> <li>✓ CAISO = operates transmission facilities in California and Nevada including facilities owned by three major investor owned utilities in California: Pacific Gas &amp; Electric, Southern California Edison, and San Diego Gas &amp; Electric</li> <li>✓ Sierra Subregional Planning Group; Southwest Area Transmission; Colorado Coordinated Planning Group; Northern Tier Transmission Group; Columbia Grid; British Columbia Transmission Corporation; and Alberta Electric System Operator</li> </ul>
Local	Local governments	In California, several municipal utilities plan, own, and operate transmission outside of CAISO and local areas

Note: Shaded rows have some level of CAISO oversight authority.



system planning.<sup>4</sup> RTOs are voluntary organizations that plan for the electricity system, ensure bulk power system reliability, operate wholesale energy markets, and centrally and dynamically dispatch generation. Decisions made by RTOs shape billions of dollars in investments and market revenues and shape the future of the energy system in critical ways. To participate in an RTO, transmission owners transfer operational control of transmission facilities to the RTO who is then responsible for providing non-discriminatory access to transmission. In the United States, approximately 70% of bulk power electricity trades are managed by RTOs [15].

CAISO was authorized in 1996 to facilitate restructuring of transmission, generation, wholesale, and retail services in California.<sup>5</sup> CAISO now operates the transmission grid for about 80% of California electric load (about 35% of the Western Interconnection electric load) and administers a wholesale energy market that provides day-ahead, hour-ahead, and real-time imbalance market services [38]. Unlike other RTOs, the CAISO Board of Governors is not elected by members, but is appointed by the Governor of California. Another difference from other RTOs is that CAISO does not have a formal committee structure based on sector representation. For example, the Midcontinent Independent System Operator has an Advisory Committee that includes elected representative from ten sectors defined by industry function (e.g., transmission owners) or interest (e.g., public consumers or environmental groups). In contrast, CAISO uses ad hoc stakeholder engagement processes to address priority issues in a relatively flat structure, with stakeholder meetings open to all interested parties, oral and written comments, and no voting.

CAISO is the only FERC-authorized RTO in the U.S. portion of the Western Interconnection. Outside of CAISO, Western balancing authorities respond to supply and demand imbalances in real time, but there are no market mechanisms to coordinate or optimize this response across balancing authorities. Energy transfers between balancing authorities are 'static' and primarily managed through standard one-hour schedules with transfers held constant over the time period [39].<sup>6</sup> Compared to the 15-min scheduling and 5-min dispatch intervals in CAISO, other Western balancing authorities are less operationally flexible. While this is less efficient than market mechanisms, it did not create an operational problem when the system relied on conventional dispatchable resources, like coal, nuclear, natural gas or hydro, which are predictable and controllable. However, variable wind and solar resources demand increased operational flexibility.

Fig. 2 illustrates the differences between separate balancing authorities, an EIM, and CAISO and the arrows show access to different types of markets. Separate balancing authorities must each manage energy imbalances independently; whereas, the EIM is a mechanism that uses CAISO's market services to manage real-time energy imbalances across a region. EIM-participating balancing authorities do not have access to the CAISO day-ahead or ancillary services markets. Participation in the EIM is voluntary and there is no exit fee. Implementation costs are negotiated between CAISO and each EIM entity. EIM balancing authorities retain functional and planning control over their transmission systems and retain responsibility for compliance, reserve, and capacity requirements.

Significant technical work has been completed and continues on the EIM market mechanisms and a Transitional Committee is deliberating questions of governance. As of May 2015, four balancing authorities had reached agreements with CAISO to participate in the EIM: PacifiCorp, NV Energy, Puget Sound Electric, and Arizona Public Service (Table 2). The EIM is anticipated to reach eight states by the end of 2016: Arizona, California, Oregon, Washington, Nevada, Utah, Idaho, and Wyoming.

### 3. A theoretical model of boundary organizational collaboration

Increasingly, organizations in various sectors are developing interorganizational collaborations to share scarce resources, reach larger audiences, enter new markets, and foster innovation. The EIM is being implemented through a newly emerging collaboration among CAISO, incumbent CAISO stakeholders, new EIM participants, and other entities in the Western Interconnection. This collaboration requires ongoing collective action to implement technical market mechanisms, establish a governance structure, and negotiate the dynamic operation of an organized electricity market. To extend understandings of the complexity and potentials for success in voluntary collaborations among diverse and competing interests, we draw on boundary organization and interorganizational literature.

#### 3.1. What is a boundary organization?

Traditionally boundary organizations were understood as spaces to negotiate the boundary between policy decision making and scientific or technical discretion [27], but today this concept has grown to include a broader range of institutions and boundaries including politics, economics, culture, and science [49]. We add electricity to this mix. A boundary organization is a particular type of interorganizational collaboration that goes beyond bridging organizational boundaries to engaging in the ongoing work of negotiating a contingent boundary [34]. Boundary organizations serve diverse organizations by allowing them to pursue collaboration while maintaining legitimacy [27,30]. Electricity governance arrangements, like CAISO and the newly emerging EIM governance structure, are natural boundary organizations. First, RTOs act as boundary organizations because they are inter-sector spaces of collaboration where at least two stakeholder organizations meet periodically face-to-face for planning, recommendation development, decision-making, and taking action on decisions made [30]. To promote efficient and reliable markets, these organizations operate on a regional scale. This scale crosses traditional jurisdictional and organizational boundaries and brings together transmission owners, investor-owned utilities, publicly-owned utilities, generators and marketers, alternative energy providers, state regulators and policy makers, environmental organizations, consumer ratepayer advocates, and industry associations.

Second, boundary organizations exist to develop policies and practices that benefit the variety of stakeholders involved [50]. This, too, is a characteristic of RTOs and the EIM governance structure. By bringing together stakeholders that would otherwise occupy distinct organizational spaces, boundary organizations purposefully introduce a variety of perspectives and rationalities for best practices [27,28]. As Crona and Parker [50] state, boundary organizations "broker or mediate interactions across a border of diverse purposes, incongruent values, and potential mutual incomprehension." In other words, as boundary organizations, these regional electricity governance structures act as flattened organizational spaces that facilitate collaboration across traditional boundaries by bringing together multiple perspectives to innovate new ways of

<sup>4</sup> For the purposes of this paper we will use RTOs to denote both RTOs and ISOs.

<sup>5</sup> Retail restructuring in California has been limited following the 2001 energy crisis. Approximately 0.08 of total retail sales in California are from entities with an ownership classification of 'retail power marketer' [14].

<sup>6</sup> Although 15-min scheduling has been established in many Western Interconnection balancing authorities in accordance with FERC Order 764, the region has not developed a robust sub-hourly energy market [78].

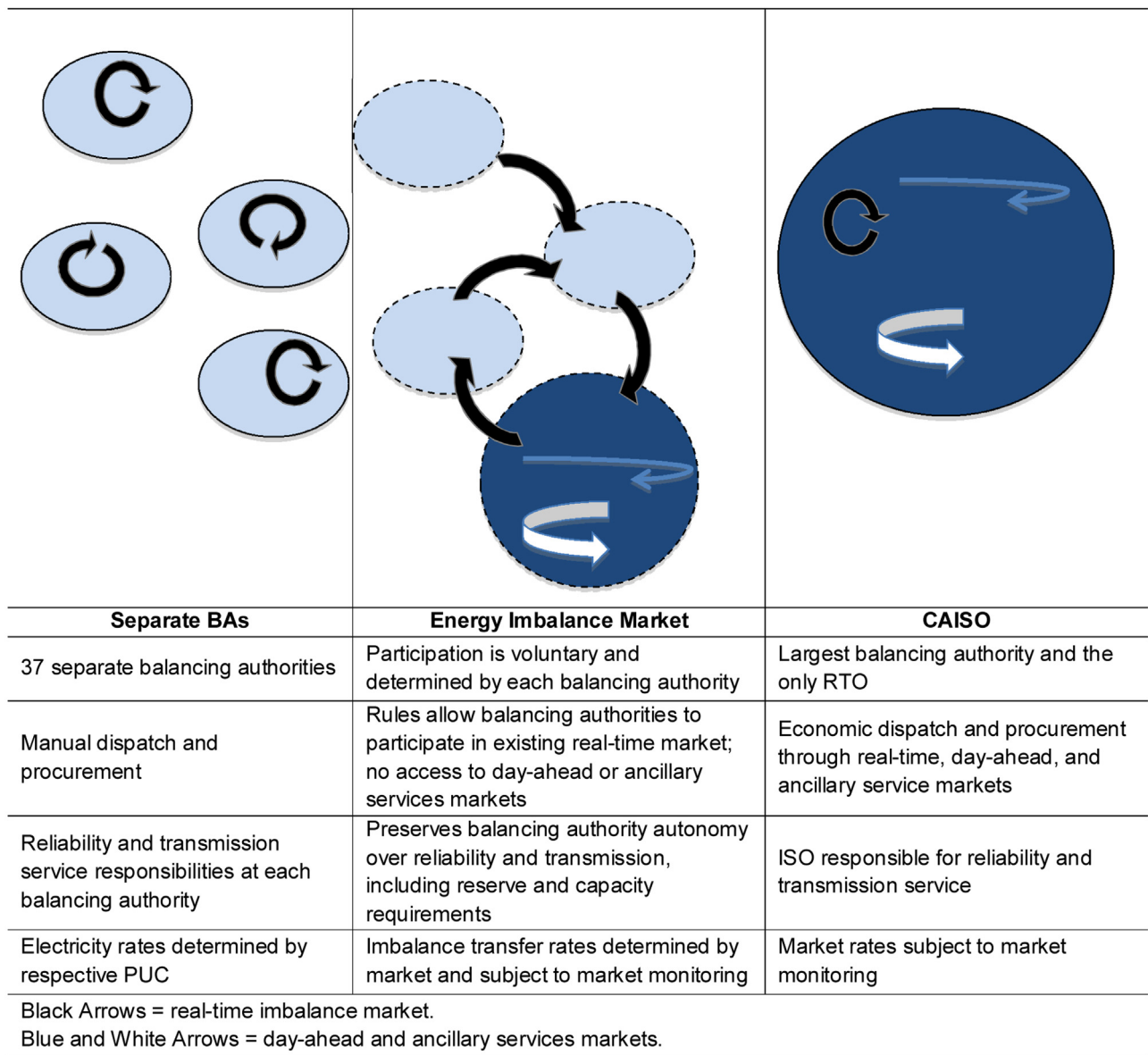


Fig. 2. The CAISO EIM is available to balancing authorities in the western interconnection. Adapted from Ref. [40].

knowing a problem and creating better solutions than any of the institutions would have reached by acting alone [30].

While much of the boundary organization literature draws attention to the aspects of collaboration that involve creating mutual or shared understanding or a consensus (e.g., an agreement as to how policy implementation will occur) [30], the interorganizational collaboration literature suggests the need to think of collaboration as involving both consensus and dissensus communication [26,51–53]. Consensus meaning shared experiences and dissensus meaning exploring of diverse perspectives. Both are inherent and necessary in interorganizational collaboration and for the implementation of policy by boundary organizations. We demonstrate the dynamic nature of boundary work by drawing on interorganizational collaboration theory to examine what collaboration looks like in practice.

### 3.2. Interorganizational collaboration and boundary organizing

The boundary organization literature highlights the EIM governance structure as a particular type of cooperative organizational

arrangement. The interorganizational collaboration literature expands our understanding of how collaboration occurs. As Gray (1989) notes, collaboration “is a process through which parties who see different aspects of the problem can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible” [54]. The interorganizational collaboration literature adds four features. First, stakeholders need to be interdependent or require each other for implementation. Second, stakeholders must own decisions collectively or have an invested interest in the decisions. Third, members must share responsibility for the future direction of the interorganizational or boundary organization domain. Fourth, the interorganizational collaboration process is dynamic and emergent and cannot be codified.

To understand how these features operate in practice, we draw on Hardy, Lawrence and Grant’s model of collective identity and interorganizational collaboration [25]. Hardy et al. explain key communicative or discursive forms that structure a collaborative boundary organization environment and help identify the elements and processes that lead to formation of collective identity and successful collaboration. The benefit of this theoretical model is

**Table 2**  
Comparison of CAISO and Participating EIM Balancing Authorities.

	CAISO	Arizona Public Service	NV Energy	PacifiCorp	Puget Sound Energy
Structure	501(c)(3) nonprofit authorized by FERC Tariff and California State Statute	Pinnacle West Capital Corporation Utility	Berkshire Hathaway Investor Owned Utility	Berkshire Hathaway Investor Owned Utility	Puget Energy Investor Owned Utility
States Served	California and Nevada	Arizona	Nevada	California, Idaho, Oregon, Utah, Washington, and Wyoming	Washington
Customers	Approx. 30 million	1.2 million	1.34 million	1.8 million	1.0 million
Capacity	65,226 MW	9,187 MW	6,124 MW	10,595 MW	6,522 MW
Sources <sup>a</sup>					
	wind 9%	1%	2%	8%	7%
	solar 7%	4%	1%	<1%	0%
	hydro 15%	0%	4%	5%	41%
	geothermal 2%	<1%	6%	<1%	0%
	nuclear 5%	13%	1%	0%	2%
	coal <1%	21%	25%	63%	24%
	natural gas 61%	61%	60%	14%	25%
	other 3%	<1%	0%	9%	1%

Sources: [41–48].

<sup>a</sup> CAISO net capacity as of 01/2014 does not include 17,4286 MW maximum import capacity for the ISO; APS data is estimated 2014 MW contribution at peak; NV Energy data is electricity delivered September 2013–September 2014 aggregated from data for Sierra Pacific and Nevada Power; PacifiCorp data is electricity delivered in 2013; Puget Sound Energy is electricity delivered in 2013.

that it provides a practical focus. Hardy et al. illustrate how participants leverage differences, produce and innovate synergistic solutions, and balance divergent stakeholder concerns by basing their model on communication-in-action, also known as a discursive approach to collaboration. A discursive approach focuses on everyday communication including language use, to understand how conversations emerge and how these conversations are negotiated by participants in ways that increase or decrease participation [52,55]. A discursive approach also emphasizes the dynamic nature of collaboration which is an iterative, social accomplishment that emerges over time [25]. Thus, the focus is not on what stakeholders think, but on *how* they communicate because what people say and do in conversation generates collective outcomes. Finally, a discursive approach enables researchers to focus on various levels of interaction, for example within an organization or at a broader societal level, and explore interrelationships among these levels. This enables researchers to understand how different kinds of relationships impact the formation of collective identity, collaboration, and policy innovation over time. Therefore, our research examines both the context of the prevailing regional discourse about electricity governance in the West and the discursive strategies used to facilitate stakeholder discussions of EIM governance within the EIM Transitional Committee deliberations.

The premise of effective collaboration for Hardy et al. [25] centers around the idea “that discursive practices produce collective identities, which lead to various forms of collective action, potentially including effective collaboration.” A collective identity becomes the symbolic glue that keeps participants focused on why they are there and what they have in common, particularly in times of conflict and dissensus [25,51,52]. In boundary organizations, like RTOs, constructing a collective identity is fundamental due to the absence of traditional organizational characteristics like hierarchical relationships. Collective identity provides a rationale for cooperation and collaboration in the place of traditional organizational controls.

Hardy et al.’s model [25] describes two stages important in examining the role of collective identity in interorganizational collaboration. The first stage focuses on how different types of conversations produce collective identity. The second stage examines how collective identity is translated through further conversations into innovative and synergistic action. Given our focus on the emer-

gence of a new interorganizational collaboration and its role as a boundary organization, we adapt this model (Fig. 3).

There are two types of conversations that are fundamentally important to the creation of a collective identity [25]. First, researchers need to pay attention to conversations that produce *generalized membership ties* that connect participants to a common problem or issue around which the collaboration is organized. Examples of conversations that contribute to formation of generalized membership ties might include characterizations or causes of problems, rationales for action, or possible solutions. These conversations are important because they establish a common understanding of issues as important to stakeholders, warrant an investment in collective action, and contribute to the discursive formation of collective identity [25]. Second, researchers need to pay attention to conversations that produce *particularized membership ties* within the interorganizational collaboration. These conversations connect stakeholders to one another rather than to an issue and might involve discussions of status, affiliations, or tasks associated with a particular role. The production of particularized ties also involves clarifying patterns of interaction such as who attends what meetings and why, how they attend (face-to-face or at a distance), and who has been granted the authority to speak for the collective [25,56]. For example, many RTOs have defined concepts of sector membership and employ various configurations of sector representation, functional committees, and member voting. In these organizations, sector membership largely defines particularized membership ties. In contrast, CAISO lacks the concept of sector membership and instead draws on the expertise and diversity of stakeholder opinion.

Collective action is made possible through this communicative construction of a collective identity [26,51]. However, collective identity does not mean effective collaboration is occurring. Rather, in the second stage of the model, collective identity is translated into effective collaboration through other dimensions of conversations.

Having combined these literatures, we first focus our attention on the context in the West that has shaped the long-standing political and cultural resistance to regionalization. We are then able to examine the shift in discourse that led to creation of the EIM. Finally, using Hardy et al.’s [25] analytical framework this study empirically applies three propositions regarding the formation of collective



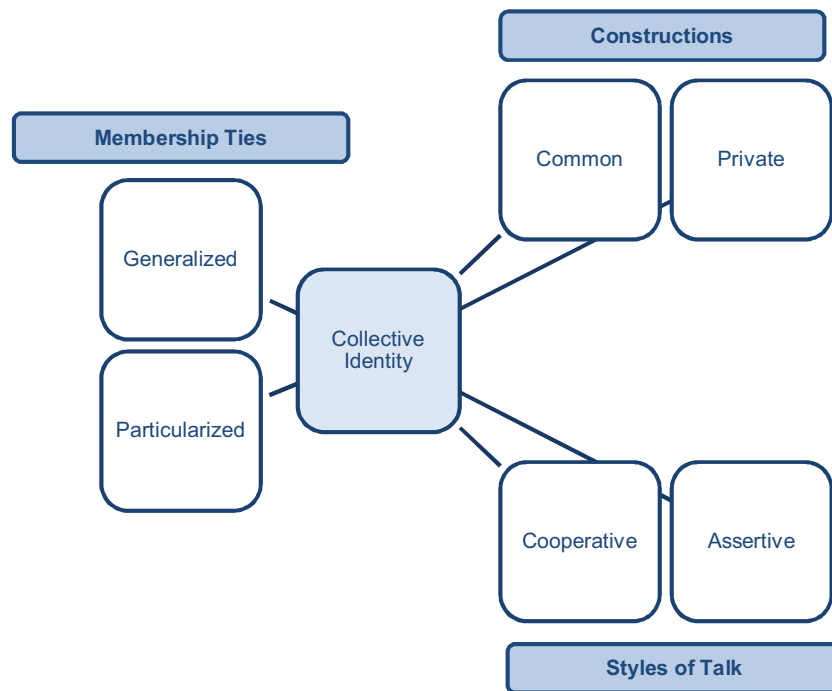


Fig. 3. Model of Interorganizational Collaboration adapted from Ref. [25].

identity to understand the emergence of a new EIM governance structure in the Western United States:

**Proposition 1.** *Effective interorganizational collaboration will be more likely to ensue when the participants in a collaboration discursively produce a collective identity for themselves.*

**Proposition 2.** *Participants in an interorganizational collaboration will be more likely to discursively construct a collective identity when they engage in conversations that establish generalized membership ties among themselves.*

**Proposition 3.** *Participants in an interorganizational collaboration will be more likely to discursively construct a collective identity when they engage in conversations that establish particularized membership ties among them.*

Accordingly, this study was guided by the following research questions:

*Research Question 1: How did stakeholders conceptualize the boundary between CAISO and the rest of the Western Interconnection?*

*Research Question 2: What communicative practices or discursive strategies did stakeholders use to connect participants to a common issue?*

*Research Question 3: What communicative practices or discursive strategies did stakeholders use to construct relationships among themselves?*

*Research Question 4: Which discursive texts (objects) refer to the interorganizational collaboration and provide a rationale for cooperation (or collective action)?*

#### 4. Methods

This research uses a case study approach and qualitative methods to provide insight into how implementation of the EIM governance structure is occurring in practice. The purpose of the research is to conceptualize this unique change in energy system governance and to provide empirical support of how collective

identity is formed in interorganizational collaborations. We achieve this by applying the analytical framework provided in Hardy et al. The qualitative methods selected for this research rely on multiple sources of information and thick description, immersion in the context, and the self-reflexivity of the researcher [57,58]. By observing what people actually do and the discursive practices they engage, these methods allow us to go beyond description to focus on interpretation of how and why processes unfolded as they did and the ways in which communication constructs or constitutes collective identities [57,58]. The approach responds to calls for energy research to focus on the human-dimensions of the system, address questions that are relevant to real world problems, and recognize the complex contexts, histories, and multiple perspectives within which the electricity system is embedded [32,37].

The case in this study is defined by the collective action that occurred around the formation of a new regional governance structure for the EIM and is bounded by the initial meetings of the Public Utilities Commission-Energy Imbalance Market Group in early 2012 through the seating of the EIM Transitional Committee in May 2014 and the initial experiences of the Committee in working together. The case does not examine the Committee's work to negotiate its recommendation for a long-term governance structure.

The data for the case study include more than 50 documents produced for the EIM initiative, 15 h of semi-structured interviews with 15 stakeholders and 11 in-person, WebEx, and teleconference meeting observations conducted between February 2014 and April 2015 resulting in 304 single-spaced pages of transcripts and 139 single-spaced pages of fieldnotes. The research includes examination of agendas, presentations, issue papers, straw proposals, stakeholder comments, stakeholder comment matrices, letter to the Board of Governors, draft and final Transitional Committee Charter documents, and the FERC Order conditionally accepting EIM tariff revisions available from the CAISO website (see Supplementary material for a list of all documents). Initial interviews were selected through purposive sampling [58] to recruit interviewees

across the different stakeholder sectors as identified in other RTOs and the CAISO Board nomination process. Subsequent interviews were identified through referrals from interviewees and included in the study to the extent they achieved our purposive sampling objectives. As a group of EIM Transitional Committee members was named, our sampling criterion expanded to include individuals participating on the Transitional Committee. Our interview participants include former CAISO staff, state regulators, investor owned utilities, publicly owned utilities, marketers and generators, alternative energy providers, industry associations, and public interest groups. The interview participants include six members of the EIM Transitional Committee.

In the stakeholder process communication performances and practices occur as an iterative back and forth between meeting participation, straw proposals, presentations, written stakeholder comments, and written responses that act “as aids in speech acts” [58]. The documents analyzed in this study include reports and presentations that provide an accounting of agency and stakeholder positions, and primary stakeholder comments and interviews that provide first-person descriptions of their own communications. Taken together the written stakeholder comments, policy documents, interviews, and meeting observations allowed us to gain insight into the communicative process as it occurs and provides a measure of triangulation because data from interviews, field notes, and documents could be compared [58].

Initially we began the research with the broad intention of understanding why some interorganizational collaborations result in innovation and some do not. Early on it became evident that stakeholders were struggling with questions of collective identity. We grounded our subsequent investigations in the literature related to discourse, collaboration, and identity. This literature was used to formulate research questions and inform our document review and interviews. The interviews, written stakeholder comments, and written CAISO responses were systematically analyzed using grounded theory and the constant comparative technique in which meanings and claims are grounded in the codes and categories that emerged through cumulative coding cycles and analytical memo writing [59,60].

The primary-cycle coding included open, process, and in vivo coding to fracture the data and identified tensions around political control, cost allocation, risk, affordability, and clean energy policy goals. This cycle of coding also identified the importance of independence and representation in stakeholder conversations and texts. The primary coding cycle resulted in 162 codes. We then focused our analysis to trace communication regarding these issues over time with focused attention on written comments and responses around issues of independence and representation. Subsequent cycles of coding were conducted to compare and reorganize the primary codes according to similarities or patterns to create categories that facilitated the analysis of the connections among codes and the development of themes, concepts, and claims. These cycles of coding drew on theoretical constructs from the literature and were guided by the research questions for the study. In these cycles of coding we sought to identify the discursive practices and strategies stakeholders used to connect participants to a common issue and directly to each other, as well as, discursive strategies used to disrupt such connections. We also sought to identify self-reflexive descriptions of the rationale for collective action, which we understood as evidence of collective identity for participants. Using the coding and analytical memo writing process, we identified four themes for the analysis: (1) boundaries and inaction, (2) shifts in the context, (3) strategic construction of the scope and venue, and (4) an emerging collective identity. Within these themes, we developed seven categories and 25 codes that form the foundation for the claims presented in the following sections.

## 5. Energy imbalance market and unique challenges in the west

The case is presented in the following sections: (1) boundaries and inaction in the Western interconnection; (2) discursive strategies that shifted the context for discourse and opened the possibility for change; (3) strategic construction of the problem to narrow the scope of stakeholder communication and distance the conversations from CAISO processes; and (4) the formation of a new collective identity around the EIM. Quotes from stakeholder interviews are shown as [CAISO-XX] and quotes from written materials in the stakeholder process as an in-text citation (see Supplementary material for documents reflecting timeline of events).

### 5.1. Boundaries and inaction in the western interconnection

The conflict over organized markets and regional governance in the West has existed since before FERC first authorized RTOs in 1996. Stakeholders in the Western Interconnection have engaged in multiple failed efforts to form another Western RTO, including Desert STAR in the southwest and IndeGo, RTO West, and Grid West in the northwest. A recent study identified three barriers to creating either a new Western RTO or an EIM: transmission cost allocation, governance, and differences in culture [61]. In our analysis, we focused specifically on the boundaries between CAISO and the rest of the Western Interconnection and identified four tensions that lead to resistance and inaction in expanding CAISO organized market mechanisms in the Western Interconnection.

First, transmission cost allocation and use of existing transmission rights are critical issues that shaped the original footprint of CAISO and continue to drive decisions about whether or not to join. Several stakeholders noted that with the growth of wind and solar resources, the cost of new transmission capacity has become an increasing source of tension. One stakeholder explained the tension around building east-west transmission in the Western Interconnection this way: “. . .what’s in it for us to finance and rate the building of all this transmission to get this thing over to Portland and California. They have this big sucking sound for all of this renewable energy; let them pay for transmission” [CAISO-206].

Second, concerns about the economic risks of engaging with CAISO organized markets and lingering tensions from the 2001 energy crisis continue to have salience in the region. Stakeholders explained that “the energy crisis litigation is still going on” [CAISO-202], “they just don’t trust California” [CAISO-209], and a perspective of “Why would I want to be subjected to a market price that could be off the charts. . . Is there really any benefit? I thought California proved that there was no benefit.” [CAISO-204].

Third, there is a long-standing political and cultural resistance to California and FERC which is expressed through a desire for “local control”, “home grown” solutions, and “anything but California.” Some of this concern reflects fear of California dominating any regional efforts: “When California sneezes, the rest of the West gets a cold. That’s reality” [CAISO-212] and resistance to federal regulation: “The biggest boogeyman in the room is FERC. They don’t want to be FERC jurisdictional. . .” [CAISO-213]. However, this also reflects deeply held beliefs, described by one stakeholder as, “. . .something almost embedded in me, and I don’t know where it came from, that it was a bad thing. . .” [CAISO-214].

Finally, there is a fundamental tension between the electricity system values of CAISO and those of other entities in the Western Interconnection. CAISO is perceived as tightly aligned with California policy making processes and achieving aggressive California policy goals, which is in tension with other stakeholders who express a primary focus on ratepayer affordability. The authorization of CAISO in state statute “binds the ISO to the state in ways that just doesn’t happen elsewhere” [CAISO-215], influences how

it works with other state agencies, and influences perceptions of its ability to be independent. As one stakeholder explained:

“California, you know, if you’ve spent any time in California, it’s like a kind of ‘Alice in Wonderland’ of utility regulations. Everywhere else in the West, you hear about ‘least cost, least risk’ and cost is 95 percent of the driver of energy policy on the part of state commissions in the Western United States, outside of California. Now in California, a big emphasis unambiguously is getting as much carbon free generation as possible in their portfolio.” [CAISO-207]

## 5.2. Opening the possibility for change

Early work to explore a Western EIM, rather than a full RTO, marked a shift in the broader context of stakeholder interactions and an opening to the possibility for change. The Western Interconnection is facing policy, economic, and market opportunity drivers of change, which are reflected in how the EIM as a market mechanism is framed in stakeholder interactions. In our analysis we identified three discursive strategies that became important for change: (1) the EIM has important differences from and is not an RTO; (2) the EIM can facilitate clean energy goals; and (3) jurisdictional fragmentation is inherently inefficient and out of step with a modern electricity system.

First, key research institutions and regional governance entities initiated efforts to explore potential alternatives for integrating renewable resources and improving market efficiency [17–24]. Through this work, an EIM emerged as an alternative to expanding or creating a new RTO in the Western Interconnection, and it is often characterized as *not an RTO*. For example,

“An EIM must be justified based on its own merits without any expectation of adding other elements typical of RTOs, such as day-ahead markets, capacity markets, transmission planning, or transmission expansion cost allocation. There is nothing in the EIM market design that forces the West to later adopt an RTO structure” [62].

In 2011, the Western Interstate Energy Board<sup>2</sup> funded the Public Utilities Commission (PUC)-EIM Group<sup>2</sup> representing public utility commissions from eleven Western states.<sup>7</sup> This group was instrumental in moving the EIM beyond conceptual conversations. In early 2012, the PUC-EIM Group solicited proposals for a Western EIM. CAISO and the Southwest Power Pool (SPP) both responded with proposals demonstrating the technical feasibility and aggregate system-wide benefits of an EIM. The EIM differs from an RTO in ways that limit the political and economic risks of regionalization, allow balancing authorities to preserve autonomy, and maintain the fundamental aspects of CAISO governance.

Second, the ability for the EIM to integrate variable renewable resources has become an important motivation for change. The EIM is described as a mechanism that “allows them [California] to accomplish... a greater penetration of renewable energy” [CAISO-207] or “an efficient way to transfer that energy [over-generation from renewable resources in California] to other states [CAISO-211]. Recently, CAISO revised its strategic plan from a focus on providing cost-effective services, reliability, and transparent energy markets [63] to actively working to ‘lead the transition to renewable energy,’ ‘reliably manage the grid during industry transformation,’ and “expand collaboration to unlock regional benefits” [64]. In contrast to previous efforts to expand organized markets in

the Western Interconnection, the EIM is now aligned with the core strategies of CAISO.

Third, the legitimacy of arguments against regional integration is being challenged by a discourse around the lack of modernization in the Western Interconnection and the inherent inefficiency of jurisdictional fragmentation. The Western Interconnection is described as “balkanized” or as a “feudal kingdom” and increasingly out of step with the “modernization” of the grid. As one stakeholder described it, “We’re not going to be going back to the base load system, and nobody’s going to head back to the idea that more bilateral contracts are better than the market” [CAISO-215]. The inefficiency of this fragmented system is being framed as a relevant concern for the jurisdictions that are responsible for protecting ratepayers and ensuring electricity affordability. For example: “I don’t want to overstate it, but it is kind of a paradigm change for state commissioners. Usually we’re asking whether something a utility did was ‘prudent’ or ‘imprudent.’ I think we have to ask ourselves the question “Is the status quo efficient?” [CAISO-207].

## 5.3. Narrowing the scope and distancing from CAISO

Following these conceptual conversations and the initial shift in focus from an RTO to an EIM, stakeholders took a series of actions to initiate implementation of EIM market mechanisms. These actions narrowed the scope of issues under discussion and distanced the stakeholder engagement process from CAISO.

In early 2013, CAISO and PacifiCorp entered into a binding implementation agreement and conducted a joint analysis estimating annual cost avoided of \$10.5 million to PacifiCorp customers and \$10.9 million to CAISO customers [65]. Three aspects of the implementation agreement were important: it provided binding commitments, was based on a relatively equal sharing of benefits, and did not address the question of EIM governance. Thus, work on the technical mechanisms proceeded, stakeholders could see an example of balancing authority-level costs and the sharing of benefits, and the politically contentious EIM governance question was deferred, but also defined by the question of how the EIM would be governed in relation to CAISO.

In March 2013, CAISO management brought the implementation agreement to their Board of Governors for approval and initiated a formal EIM stakeholder engagement process. The CAISO-led process engaged stakeholders in a concrete initiative, opened up access to specialized knowledge and skills to resolve the complex technical challenges of implementation, and, in the process, surfaced conflicts related to governance. The April 2013 Straw Proposal proposed no transmission charge for EIM use of as-available transmission. Although this position was challenged, this feature remained in the EIM design and served to defer the contentious issue of transmission cost allocation and transmission rights. The Straw Proposal also presented three models for EIM governance: (1) a market administrator model that places oversight of the EIM under the CAISO Board, (2) a market operator model that places oversight under an independent body, and (3) a hybrid approach. In reaction to this proposal, stakeholders requested “a more in-depth discussion” regarding governance issues [66] and CAISO established a parallel stakeholder process specifically dedicated to governance [67].

In August 2013, CAISO initiated the EIM governance stakeholder process with a white paper that proposed establishing a Transitional Committee authorized as an advisory committee to the CAISO Board and charged with developing recommendations for a long-term independent governance structure. The two-step process recognized a need to foster a space for collaboration, while allowing EIM implementation with PacifiCorp to proceed without delay. Between August and December of 2013, CAISO facilitated a process to develop a charter for the Transitional Committee

<sup>7</sup> The PUC-EIM group also includes a staff member from the South Dakota Public Utility Commission.

that focused on two issues: independence and representation. The decision to proceed with EIM implementation and to create a Transitional Committee, narrowed the issues that needed to be addressed, allowed new stakeholders to play a more meaningful role in the process, and established a separation from CAISO.

“The EIM crosses California borders and extends now soon to be into seven different states in the West, we have to find a way to accommodate the interests of other regional entities. We turned the issue over to this Transitional Committee to manage the stakeholder process. . . I think that’s a case where the ISO [CAISO] wasn’t fully vested in the outcome other than the fact that it needed to be resolved” [CAISO-211].

#### 5.4. Formation of collective identity

The Transitional Committee was established as an advisory committee to the CAISO Board through authority in the CAISO tariff, yet committee responsibilities and the membership procedures were negotiated through the stakeholder process. In these conversations, two issues emerged as important: the text defining the independence of the permanent EIM governance structure and the nomination and appointment procedures for Transitional Committee members.

##### 5.4.1. Abstraction of independence

Throughout the engagement process stakeholders expressed diverse positions regarding the *independence* of a long-term governance structure. In these conversations there was a tension between stakeholders seeking to enable change and those seeking to sustain stability. The stakeholders seeking change described independence as autonomous of California political control, geographically representative, and welcoming of new EIM participants. “The CAISO Board of Governors, whose members are appointed by the governor of California, is not a workable long-term governance board for a market whose greater value derives from a wider geographic footprint” [66]. Or, more simply put: “It can’t be a creature of California Independent System Operator or no one would join it” [CAISO-215].

In contrast, the stakeholders seeking to sustain stability described independence as being autonomous from a stakeholder decision-making entity and supported retaining the status quo. For example, “prejudgments about an independent governance structure separate from the CAISO Board of Governors are unnecessary” [68].

Rather than explicitly accepting or rejecting different constructs of independence or responding to requests to explicitly define acceptable governance options, CAISO repeatedly responded, “The current proposal intentionally avoids prescribing the specifics of this future structure to allow such decisions to be informed by the work of the Transitional Committee” [69].

In the course of the stakeholder process, the texts reflecting the concept of EIM governance independence evolved. In the April 2013 straw proposal, CAISO presented three models of governance and argued that governance independent of CAISO acting as the administrator “presented fundamental risks to CAISO’s ability to operate the EIM at a low incremental cost” [70]. The October 2013 draft of the committee charter defined independence as, “independent of individual EIM market participants” [71]. The charter language parallels the FERC requirement for independent RTO governance, thereby enabling, the possibility, but not requiring, CAISO delegation of authority. While the language explicitly rules out the possibility of an EIM governance structure with financial ties to market participants, it does not prescribe other specifics of how the EIM will relate to CAISO, existing CAISO-stakeholders, potential EIM participants, or non-participants in the region. CAISO and other

stakeholders articulated multiple meanings of independence and by deferring the issue of what authority, if any, would be delegated to the new EIM governing body abstracted the idea of independence.

##### 5.4.2. Abstraction of representation

CAISO’s proposal to seat Transitional Committee members was modeled on the procedures used for the CAISO Board. Stakeholders would be allowed to self-identify in one of the following sectors: investor owned utilities, publicly owned utilities, generators and marketers, alternative energy providers, EIM participants, and government agencies and public interest entities.<sup>8</sup> However, the central feature of the nomination and appointment process is that it is not designed to seat individuals that represent specific sectors. This is reflected in four aspects of the process. First, the Board is required to appoint a member nominated by the first three EIM entities to sign implementation agreements. Second, the Board is required to appoint members based on qualifications and rankings, but is not required to appoint a member from each sector. Qualifications include “support for the success of EIM,” and “ability and willingness to consider and represent a broad range of perspectives” [71]. Affiliation with an EIM stakeholder is not required. Third, nominations are made through stakeholder sectors, but then consolidated and ranked across all sectors. Finally, the number of members exceeds the combined number of sectors and EIM participating entities. For example, the charter adopted in December specified that there would be nine members representing eight membership positions (seven sectors and one EIM entity).

In response to this proposal, stakeholders expressed diverse positions regarding *representation* including suggestions that membership should represent each sector or should be conditional, for example, depending on cost-exposure and risks or alternatively a direct interest in the EIM. Other stakeholders emphasized the important of inclusive representation. For example, “Key to bringing multiple states and BAs [balancing authorities] into the EIM will be the degree to which those states and entities view the governance structure as inclusive of their interests” [69]. A critical tension occurred around privileging certain stakeholders in terms of access to the CAISO Board or guaranteed appointments. The appointment process requires seating up to three EIM entities with signed implementation agreements.<sup>9</sup> In contrast, CAISO load serving entities are not guaranteed representation. This was characterized as “a telling blind spot to California consumer interests” [72] given the exposure of these entities to market risks and uplifts and their inability to exit the market in under two year.

Rather than revising the nomination and selection procedures, CAISO repeatedly explained its intent to establish committee membership based on “. . . a diverse, well-qualified, group that can promote the objectives of a successful EIM” [69]. The commitment to success is seen as providing “a strong incentive to properly consider all interests rather than elevating any one entity or interest over another” [66]. Additionally, in response to requests to privilege certain stakeholder positions, CAISO maintained the importance of an open and transparent process stating, “The Board, however, cannot commit to provide any particular level of deference in advance to any particular proposal, member or subgroup of the Transitional Committee” [69].

In the course of the stakeholder process, few changes were made to the text outlining the nomination and appointment process and positions of stakeholders did not evolve. This was a political and

<sup>8</sup> While the process is similar the sectors used for CAISO Board of Governor nominations are different.

<sup>9</sup> This provision was subsequently amended to create a fourth EIM Entity seat on the Transitional Committee.



somewhat contentious process in which CAISO and other stakeholders articulated diverse and conflicting positions. By structuring the process around qualifications, diversity, a commitment to EIM success, and open access for any interested stakeholder, CAISO abstracted the idea of representation. Although the CAISO Board has discretion over Transitional Committee member appointments, it is critical that the appointments are perceived as legitimate to policy makers within and outside of California, existing market participants, potential future market participations, and non-participants.

#### 5.4.3. Collective identity: the EIM

The Board approved the Transitional Committee Charter in December 2013, and members of seven nominating sectors selected and ranked 25 nominations for Board consideration. In May 2014, the Board amended the Transitional Committee Charter to include an additional member and appointed eleven members to the committee. Subsequently, three additional EIM entity members were appointed.<sup>10</sup>

The appointment of the Transitional Committee marked another transition. Stakeholders described the need to balance interests to achieve success. The Transitional Committee is responsible for, “recommending a governance structure that will be welcoming to other utilities in the western United States and still be reassuring enough to the California legislature and California governance that the state’s interest, as the very biggest load in the entire system, will be protected and its consumers will be protected.” [CAISO-215].

Furthermore, stakeholders described the Transitional Committee as “holding the pen” in developing recommendations, as important in shaping the decision on EIM governance, and are optimistic about the potential for success. “This is creative stuff. This is game changing stuff.” [CAISO-215].

## 6. Discussion and conclusions

The political context for the CAISO expansion highlights old and new tensions. CAISO walks a fine line as it interacts with and balances power and influence among new stakeholders as it seeks regionalization, yet must maintain the involvement and confidence of California utilities, transmission owners and policy makers. Similarly, state regulators and energy system stakeholders outside of California are seeking to promote efficiency, protect ratepayers and expand the market for their resources while limiting perceived risks. These risks include burdens from transmission cost allocation, loss of rate stability, loss of local political and operational control, and exposure to fundamentally different energy system values and policy drivers. The boundaries defined by these risks contributed to the long-standing inaction around organized markets in the Western Interconnection.

A shift in the context occurred as stakeholders began discussing an EIM as an alternative to creating a western RTO. Three discursive strategies became important in creating legitimacy for the initial action to move forward with the CAISO-PacifiCorp agreement: the EIM is *not an RTO*, the EIM is fundamental for achieving clean energy goals, and the jurisdictional fragmentation of the Western Interconnection is inherently inefficient and is placing a burden on ratepayers. While not all stakeholders agree with these characterizations of the EIM, these discourses became prevalent and opened the possibility for change. Additionally, stakeholders that became directly involved in the CAISO EIM initiative used these discourses as resources for action and further conversations.

As the EIM initiative unfolded, stakeholders took three important actions that narrowed the scope of issues under discussion and distanced the stakeholder engagement process from CAISO. First, the politically contentious question of governance was deferred while technical implementation proceeded providing a balancing authority-level example of the potential distribution of costs and benefits of EIM participation. Second, the venue for discussions was distanced from conventional CAISO stakeholder engagement process by establishing the EIM Transitional Committee as a new structure for collaboration and engaging in outreach and meetings throughout the region. Third, the contentious question of transmission cost allocation was deferred in the initial operation of the EIM.

To explore how discursive practices and strategies shaped collaboration in the newly emerging EIM Transitional Committee, the analysis empirically applies three propositions from Hardy et al. [25] describing the role of conversations and collective identity in collaboration.

First, Hardy et al. [25] argue that conversations that connect participants to a common issue around which the collaboration is organized produce generalized membership ties. The analysis of the EIM Transitional Committee demonstrates that the discursive strategy of abstraction allowed participating stakeholders to retain their diverse perspectives and at the same time to connect to the defined purpose for the EIM Transitional Committee as a common issue that warrants collective action.

Second, Hardy et al. [25] argue that conversations that develop participants’ understanding of themselves as tied to each other directly produce particularized membership ties. The analysis of the EIM Transitional Committee demonstrates that the discursive strategy of abstraction was used to establish the legitimacy of non-CAISO interests by guaranteeing a seat for EIM entities and an inclusive requirement accepting all nominees with a specific interest in the EIM. Through this political process CAISO worked to construct a distinct entity that is more than simply a set of representatives.

Hardy et al. [25] argue that the discursive construction of collective identity allows participants to construct themselves, the problem, and the solutions as part of a collaborative framework in which the potential for joint action is both significant and beneficial. We interpret the new orientation around *The EIM* and claims by stakeholders about the potential for significant and beneficial collaboration as evidence of an emerging collective identity formed through a connection to the common purpose of developing recommendations for a long-term governance structure independent of individual EIM market participants and acceptance of the Transitional Committee structure as a meaningful process.

This study demonstrates how discursive strategies, and the strategy of abstraction in particular, can maintain a space for both agreement and dissent, encourage participation of multiple voices, normalize dissensus, and can constitute the collective identity of an emerging boundary organization.

This study also contributes to the growing literature on the transition of electricity system governance and the importance of policy in addition to technology, economics, and finance. CAISO’s position in the Western Interconnection is instructive to other countries that are considering similar integration, market, and transmission planning issues. These regional governance issues are already evident in the Association of Southeast Asian Nations [9], within Europe [73,74], and connections between Europe, the Middle East, and North Africa [10] and have far reaching consequences for the future of electricity systems. The EIM is bridging long-standing resistance to regionalization of the Western Interconnection, which is critical for integrating renewable resources. The implementation of the EIM, through market design and governance structures, will shape the pace of this transition and determine how benefits and costs are

<sup>10</sup> The Transitional Committee Charter was revised in April 2015 to add one member from each EIM entity, thus providing a seat for Arizona Public Service. Subsequently, a seat was provided for Puget Sound Energy.

shared. Additionally, the EIM is shifting jurisdictional boundaries. Five other entities have since signed agreements to participate and PacifiCorp is now considering becoming a full member of the CAISO. The new EIM governance structure will alter the relationships among state and federal regulators and the EIM has opened discussions about altering the governance structure of CAISO.

This research is enabled and limited by the focus on a newly forming interorganizational collaboration and a single case. A case approach allows us to conceptualize a context that is intrinsically interesting, trace discursive practices over time, provide empirical application of theories, and extend existing theories to a new context [75–77]. However, the work of the EIM Transitional Committee is ongoing and further research is needed to assess how the collective identity of the Transitional Committee evolves, whether it is able to accomplish effective collaboration, and whether it is able to contribute to policy innovation and effective implementation of policies to integrate renewables into the electricity system. We suggest further research examining how the EIM collective identity is translated through conversations and how this interorganizational collaboration shapes policy implementation.

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### Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.erss.2016.05.015>.

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