2/20
Kaii - looks good. I noted a few comments.

3.2.17 where is proposal or solutions? or is that to come?

ercot

Concept Paper on Data Product Change Management

Submitted to the Market Data Working Group on Month DD, YYYY.

Document Revisions

Date	Version	Description	Author(s)
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1 Executive Summary

The objective of this White Paper is to describe a proposal for the development of a database establishing transparency for all internal ERCOT initiated projects, as well as Market driven projects initiated through the Market Stakeholder process.

2 Introduction

On March 31, 2016 concerns were expressed at the Technical Advisory Committee (TAC) by Market Participants regarding negative impacts experienced upon release of ERCOT driven initiatives due to the lack of timely notification. TAC recommended a data workshop be conducted as an appropriate forum to address Market Participant visibility into upcoming ERCOT initiated internal system or report changes.

The Market Data Workshop, hosted by ERCOT on May 20, 2016, identified the process in which Market changes are currently performed establishing the framework for dialogue regarding data changes, delivery methods and desires for a future communication state. The Market Data Working Group (MDWG) agreed to be the venue for gathering these discoveries.

Problem Statements were developed and agreed upon at MDWG whereby Market Participants would participate in a sub-working group to begin a deep dive exploring potential solutions to increase change transparency.

Need to update introduction to include high level recommendations.

- Developer Portal
- Process Change
- Content organization

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3 Problem Statements

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The following problem statements reflect impacts to consumers of ERCOT data products. Not all problem statements are present in all cases and don't necessarily impact all stakeholders equally. The problem statements do not capture any constraints that may impact potential solutions to the problem statements.

- A 30-day notice of data product changes does not provide a sufficient window within which to assess and address Market Participant downstream technical impacts.
- Design, development, and testing efforts for Market Participants are hindered by a lack of accurate data definitions and sample data.
- There is no single location/repository for documentation of the drivers behind changes and affected reports and data elements.
- There is no single historical record of changes made to reports and data elements.

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- The lack of a central repository for releases with details and links to change management discussions and approvals accessible to Market Participants makes it difficult to track status of changes.

- Impacts to Market Participant downstream system owners are not included in the Impact Analysis for proposed changes.

- Since changes with Market Participant downstream impacts often result in downtime and/or outages, maintenance/release windows for changes are too broad.

not sure what you mean here

4 Case Studies

4.1 Wind Report

At the March 29 2016 Market Data Working Group (MDWG) meeting, ERCOT announced an upcoming 30 day notice for changes to two reports. The notice included changes to the Wind Power Production - Hourly Averaged Actual and Forecasted Values (report ID: 13028, EMIL ID: NP4-732-CD) and the Solar Power Production - Hourly Averaged Actual and Forecasted Values (report ID: 13483, EMIL ID: NP4-737-CD). Until the announcement, there had been no discussion in MDWG of the changes, the justifications, or benefits it could provide market participants or ERCOT. There was no discussion with Market Participants about potential impacts to their systems.

What is "it"? The reports, MDWG, ERCOT?

Locating L

~~Trying to find~~ details on the release proved difficult. There was not a central location to find information about the upcoming release or changes to the schema. To get the necessary information required reaching out to Client Services.

The modification to both reports dealt with the time series data. The time series originally had a timestamp format (see figure x-x).

Figure x-x

The new format was in the "hour ending" format (see figure x-x).

Figure x-x

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What is DME?

The 30 day window did not provide sufficient time for impact analysis and development of a solution. The changes were more than superficial and modified how time is calculated and required patches to DME's internal data warehouse and downstream applications. This resulted in 70-80 man hours to develop and deploy solutions costing DME thousands of dollars. Additionally, the release window was over several days and required close monitoring and had to wait for errors to surface in order to know when ERCOT deployed the changes.

Additionally, during the release, there was no communication as to when ERCOT deployed the change which required close monitoring by market participants

4.2 **Browser Upgrade to IE11**

At the September 2014 Technical Data Transport Working Group (TDTWG) ERCOT noted an upcoming change to occur at the end of 2014, upgrading ERCOT's current IE8 supported browser to IE11. For many in the room, this announcement came as a surprise. In the November 2014 TDTWG meeting, numerous questions arose and concerns from Market Participants regarding the tight timeline for notice, implementation and lack of information. ERCOT noted that supported Internet Explorer versions and browsers would not be known until after March 2015. Market Participants requested more information be provided which could not be obtained until the following TDTMS meeting. Being made aware of this upcoming project earlier would have allowed all impacted MPs ample time for adequate preparations to systems and related dependencies. Fortunately, due to browser compatibility issues, ERCOT's release of IE11 did not occur until September of 2015.

4.3 **Public Dashboard Changes**

Draft language in progress.

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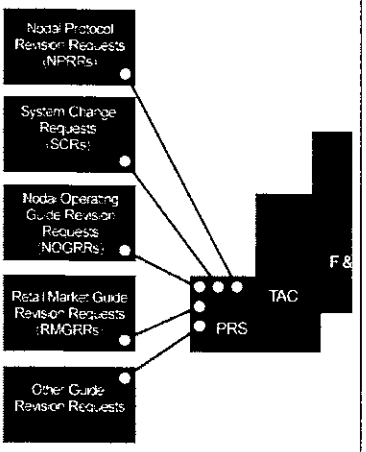
5 Current Change Process

Deleted: In response to market and regulatory needs, ERCOT manages a variety of projects each year. ERCOT's ongoing Project Priority Planning Process ensures that projects are prioritized as part of the transparent system of governance. Proposed Revision Requests are reviewed by the Protocol Revision Subcommittee (PRS). If approved at PRS, the Revision Request proceeds to the Technical Advisory Committee (TAC) and then to the Board for final review and approval. The ERCOT budget is approved every two years. To ensure fiscal responsibility, the ERCOT budget, which includes funding to support project activity, is reviewed by the Finance and Audit Committee and approved by the ERCOT Board.



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¶
Portfolio Management¶
Project Management Office¶
Market Rules¶
Change Control Management¶
Production Support¶
Development and Testing

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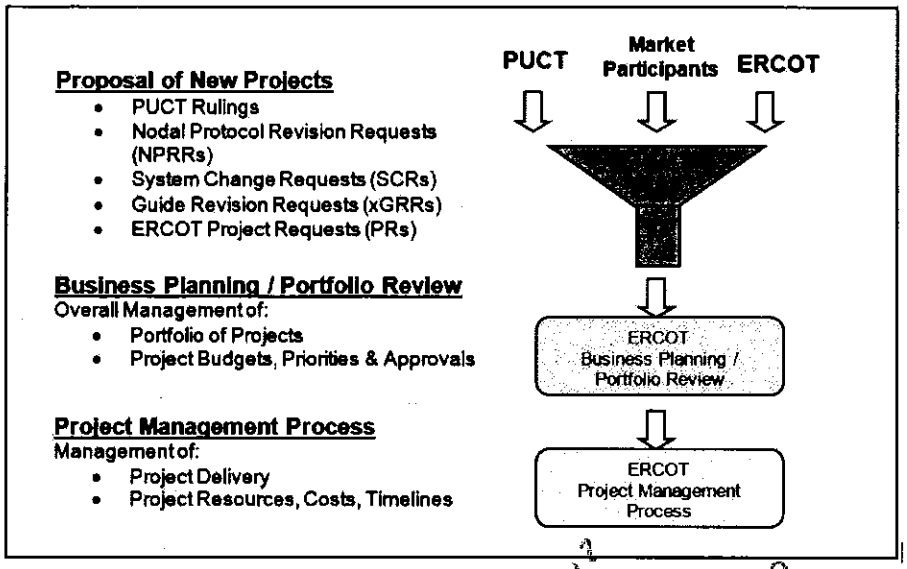
5.1 Initiation of Change

The introduction of change to MIS Data Products comes from new project requests which can originate from three primary sources:

- Regulatory Entities (Texas Legislature, PUCT, NERC, FERC, TRE, etc.)
- Market Participants
- ERCOT Staff

The following diagram is a high level overview of the flow of new project request into the project management process.



5.2 Release Coordination

Once an effort has been approved and analysis of the scope of work has been completed, information technology change requests are submitted by ERCOT staff into an internally available release tracking application. Change requests describe the change, priority, impacted systems and whether or not the change is Market Facing.

Change requests are reviewed by the Change Advisory Board (CAB).

Release scheduled based on:

- Resource availability

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- Priority
- Impacts to other scheduled changes
- CAB Process

Release Types:

- On-Cycle – Follows standard process and schedule
- Off-Cycle – Follows standard process and non-standard schedule
- Exception – Follows highly accelerated process due to non-critical production issue
- Emergency – Emergency, paperwork later release due to critical issue

Market Facing

30 Day Notice

- 1. Report out of ITCM that shows all 'Market Facing' for upcoming releases.
- 2. Work with SME or Business Owner on Description.
- 3. Send Notice
-
- 10 Day Notice
- 1. Report out of ITCM may shift around.

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Release Windows

- Release window can span a few days

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5.3 Release Communication

Commercial Operations Market Guide

Communication about changes to Data Products follows the process outlined in Section 5: Market Notice Communication Process of the Commercial Operations Market Guide. Section 5.1.3.2 defines the parameters around planned releases.

(2) ERCOT shall send Market Notices related to planned releases according to the following schedule:

(a) An initial Market Notice no later than 30 days prior to the start date of the release;

(b) A follow-up Market Notice no later than ten days prior to the start date of the release;

(c) A follow-up Market Notice no later than one day prior to the start date of the release; and

(d) A final Market Notice may be sent as soon as possible after the end of the release. Unless required by the Technical Advisory Committee (TAC) or any of its subcommittees, the sending of a final Market Notice shall be at ERCOT's discretion.

Figure 1 - Section 5.1.3.2 of the Commercial Operations Market Guide

Market Notice Lists

Market Notices are sent as emails to a number of different lists depending on the topic. Changes to extracts and reports will be sent to **Notice_Extracts_Retail** and **Notice_Extracts_Wholesale** if the change is not part of a release. If the changes are part of a release, it would be communicated via **Notice_Release_Retail** and **Notice_Release_Wholesale** and be identified as a Market Facing Change.

List	Description
NOTICE_CONTRACTS	Market Notices for Requests for Proposal and Requests for Information that are issued by ERCOT and contracted services such as Reliability Must Run and Black Start.
NOTICE_CREDIT	Market Notices concerning management of credit in the ERCOT market.
NOTICE_CRR	Market Notices concerning Congestion Revenue Rights.
NOTICE_EXTRACTS_RETAIL	**Market Notices relating to Data Extracts and reports supporting Retail data transactions, including procedures, postings or changes.**

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NOTICE_EXTRACTS_WHOLESALE	**Market Notices relating Data Extracts and reports supporting Wholesale data transactions, including procedures, postings or changes.**
NOTICE_GENERAL	Market Notices of general nature intended for distribution to the ERCOT Market, but not applicable to any other specific mailing list.
NOTICE_GRIDCONDITION	Market Notices of Grid Emergency events in progress ***Locked List This list requires approval from the entity authorized representative to enter ***
NOTICE_LEGAL_NOTIFICATIONS	Market Notices to the ERCOT Market of a legal nature.
NOTICE_OPERATIONS	Market Notices Concerning Power Operations and related Technical Issues at ERCOT.
NOTICE_OUTAGES_RETAIL	Market Notices concerning system outages, business process failures, service degradations and related issues that affect retail market functions.
NOTICE_OUTAGES_WHOLESALE	Market Notices concerning system outages, business process failures, service degradations and related issues that affect wholesale market functions.
NOTICE_PRR_SCR	Market Notices of System Change that include the implementation of Protocol Revision Requests or System Change Requests
NOTICE_RELEASE_RETAIL	**Market Notices concerning system outages or upgrade releases and testing that affect retail market functions.**
NOTICE_RELEASE_WHOLESALE	**Market Notices concerning system outages or upgrade releases and testing that affect wholesale market functions.**
NOTICE_RETAIL_PROCESSING	Market Notices concerning the processing of retail transactions.
NOTICE_SETTLEMENTS	Market Notices concerning the Wholesale Settlements issued by ERCOT that are public in nature.
NOTICE_TESTING_RETAIL	Market Notices concerning Market Participant testing with respect to Retail Test Flights and Retail Systems Testing.
NOTICE_TRAINING	Market Notices concerning ERCOT training events.

Sample Notice

- Form elements
- Attachments

what? this proposal - is this the place for this or should be under solutions?

Market Facing

- How does this change process?

5.4 Publishing End Points

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Information related to Report and Extract Data Changes is published to the following channels and locations. All content currently published is classified as Public.

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ERCOT.com

- Committees - http://www.ercot.com/committees
- Meeting Calendar - http://www.ercot.com/calendar
- Market Rules
  - NPRRs - http://www.ercot.com/mktrules/issues/nprr
  - NOGRRs - http://www.ercot.com/mktrules/issues/nogrr
  - System Change Requests - http://www.ercot.com/mktrules/issues/scr.html
  - COPMGRRs - http://www.ercot.com/mktrules/issues/copmgrr
  - LPGRRs - http://www.ercot.com/mktrules/issues/lpgrr
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  - RMGRRs - http://www.ercot.com/mktrules/issues/rmgrr
  - SMOGRRs - http://www.ercot.com/mktrules/issues/smogrr
  - Texas SET Change Controls - http://www.ercot.com/mktrules/issues/txsetcc
- Project Information - http://www.ercot.com/services/projects
  - Release Targets
  - ERCOT Portfolio Gantt
  - Project Priority Process
- Board Stoplight Reports - http://www.ercot.com/committee/board ← Formatted
- Market Notices Archives - http://www.ercot.com/services/comm/mkt_notices/archives

Lists.ercot.com

6 Constraints to Current Process

Constraints to current process go here.

6.1 Release Coordination

Schedule can change based on:

- Schedule slippage impacted by what?

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- Critical production issues
- Change in priority, project cancelled (?)
- Failed deployment (uncommon)
- Code deployed but backed out due to missed defects (uncommon)

Release Window:

- Why can't release be specific time instead of over a few days?

6.2 Release Communication

- N/A

6.3 Publishing End Points

-

7 Gaps in Current Process

7.1 Release Coordination

is not efficient when changes directly impact mps. Significant idle time while waiting for changes to be implemented

- Broad release window leads to someone from an MP's technical team waiting around for something to break.
- Lack of categorization or a way to flag changes to Data Products makes it difficult to find or identify changes within the ERCOT Change Management System.
- Market Facing flag, who reviews?
- An adequate test environment isn't currently available. MOTE.

Do all changes flow through ITCM?

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7.2 Release Communication

Documentation gaps:

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- Data Definitions not always available.
- Sample Data not always available.
- Lack of a Version History.
- Clearer definition of what 'Market Facing' means.
- Current system relies on what submitter puts into system. Though Notice team works with business to improve descriptions, etc. If someone

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incorrectly selects 'Market Facing', not a big deal. If someone incorrectly doesn't select 'Market Facing', change won't show up in list of upcoming 'Market Facing' changes. The latter is rare, but has happened.

-

7.3 Publishing End Points

ERCOT.com:

- Content is spread out and not organized around this use case

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Lists.ercot.com:

- Not everyone is subscribed to all lists
- Information overload
- Can't search across lists

8 How Others Approach

8.1 Peer Institutions

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PJM

- If there's a revision to a primary product, like LMP's, the notification will appear on that page of the website. These notifications are archived, so that consumers coming in after the fact can see a history of reposts, to ensure they're using the correct data.
- Other avenues include email notifications through their subcommittee system.

ISO-NE

- Market notices are sent out for any changes to our Web Services, ~~we give~~ 30-day notices to participants for any changes to the Web Services so they can make any updates as needed.
- We use a page on our site to communicate in a more "human" way about ~~our~~ Web Services ~~than that~~ api documentation page. This page (and the XLS on the page) gives more details about the reports ~~we offer~~, available parameters, how far back data is available for, etc.: https://www.iso-ne.com/participate/support/web-services-data

- Version history is not provided. There is a secure portal for one-off requests and there are separate sites that have data specifically for

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generators (Local Control Centers) ~~but I'm not aware of exactly what's included on those.~~

CAISO

- CAISO has a Secure Portal, like our MIS, that holds all its data: oasis.caiso.com. In the Atlas Reference > Oasis Publications and Revisions section ~~they have an~~ there is interface that allows ~~you to~~ query publications and notifications. Utilizing the Version drop-down, ~~you can choose either~~ "New" or "Revised". The former signifies when the report is initially dropped to the system; the latter if/when it's revised/corrected. You also have the option to download the query results in XML and CSV.

can be chosen

suggest removing personal pronouns ☺

MISO

- MISO utilizes subscription-based notifications to alert MP's about report revisions.

NYISO

- NYISO has a Reports & Information section where corrected reports/prices are listed and downloadable.

8.2 Other Industries

The following are excellent examples of developer portals. While not strictly data change management, they do emphasize change visibility and interaction.

GitHub Developer

- Extensive documentation that is easy to navigate and search.
- A stay in the know section with posts of the most recent changes to their API.
- A versions page with a change log with the differences in the API from version to version.
- Callouts of breaking changes.
- Code examples of request and responses of every endpoint.

New Zealand Electric Authority Developer

- Detailed information about each API service.
- Each API service has the GET, POST and DELETE operations broken out.
- Code examples of responses and requests in a variety of languages.
- Ability to try out API services in the browser.
- Swagger API documentation.

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when is the proposal for solutions?