

1 OEB STAFF INTERROGATORY 14

2 **6.0 Market Renewal Program**

3 **6.2** *Are the IESO's forecast 2018 operational costs for the Market Renewal Program*
4 *appropriate in the context of the scope and timing of the overall project?*

5 **Staff IR #14**

6 INTERROGATORY

7 Reference: Exhibit A-2-2. Pg. 7

8 Preamble:

9 The Application states: "The analysis found that starting in the early 2020s, the proposed
10 Market Renewal initiatives could result in an estimated benefit of up to \$5.2 billion over 10
11 years, the majority of which will be realized by consumers".

12 -and-

13 Reference: Exhibit C, Tab 2, Schedule 1, Pg. 3

14 The Application states: "In 2018, the scope of the Market Renewal Program (MRP) has been
15 focused on the Energy and Capacity work streams. The Operability work stream, including the
16 More Frequent Intertie Scheduling ("MFIS") initiative, will be explored as part of a broader
17 conversation on the future of Ontario's electricity market, rather than explicitly in the MRP".

18 Questions:

- 19 a) Please elaborate on how the elimination of the of the Operability work stream, including the
20 MFIS stream, will affect the estimated benefit of \$5.2 billion available from MRP activities.
- 21 b) Please discuss how the elimination of the Operability working stream/MFIS initiative affects
22 budgets and staffing requirements of the MRP.
- 23 c) Will the elimination of the Operability work stream/MFIS initiative from the MRP allow for
24 expedited completion of other MRP initiatives?
- 25 d) If known, to what extent could the Cap and Trade Cancellation Act, 2018 (if passed) impact
26 the IESO's planned MRP activities and budgets in 2018?
- 27 e) If known, to what extent could the Cap and Trade Cancellation Act, 2018 (if passed) affect
28 the IESO's MRP projected savings of \$5.2 billion dollars?

1 RESPONSE

- 2 a) The Operability work stream was always anticipated to be a work stream that would be
3 staggered to the Energy and Capacity work stream to ensure that those design changes
4 would be part of those considerations. The IESO has now more clearly communicated that
5 efforts will be focused on Energy and Capacity and that the Operability works will be
6 considered in the future. This allows for the scope of the program to be more manageable
7 and to allow for the IESO and stakeholders to holistically review operability needs and
8 opportunities at a later time. In the Market Renewal Benefits Case, the Operability work
9 stream accounted for between 12% - 20% of the projected net benefits of Market Renewal;
10 those benefits will be realized when the Operability work will be completed. It should also
11 be noted however, that an interim solution for meeting flexibility needs was implemented in
12 2018 and will capture some of these potential operability benefits. As stated above, the IESO
13 still intends to explore potential market enhancements related to operability and these
14 efforts will be facilitated by the foundation being put in place through Market Renewal
15 today.
- 16 b) The elimination of the Operability work stream/MFIS initiative resulted in 3 FTE's as well as
17 \$0.4 million in consulting dollar savings that have been redeployed to the Energy and
18 Capacity work streams within the Market Renewal Program ("MRP").
- 19 c) No, elimination of the Operability work stream/MFIS initiative will not allow for an
20 expedited completion of the other MRP initiatives.
- 21 d) If passed, the *Cap and Trade Cancellation Act, 2018* is not expected to impact the IESO's
22 planned MRP activities and budgets in 2018.
- 23 e) The impact of the *Cap and Trade Cancellation Act, 2018* on the MRP projected savings is not
24 known at this time.

1 OEB STAFF INTERROGATORY 15

2 **6.0 Market Renewal Program**

3 **6.2** *Are the IESO's forecast 2018 operational costs for the Market Renewal Program*
4 *appropriate in the context of the scope and timing of the overall project?*

5 **Staff IR #15**

6 INTERROGATORY

7 Reference: Exhibit A-2-2. Pg. 15

8 Preamble:

9 The Application states: "The Market Renewal Program will require an additional average
10 headcount of 43, bringing the total headcount requirement for the IESO to 731 in 2018."

11 Questions:

12 a) Of the 43 positions, how many have been filled as of August 1, 2018?

13 RESPONSE

14 a) Please refer to the response to Energy Probe Interrogatory 13 at Exhibit I, Tab 6.2,
15 Schedule 4.13 for additional background. As of August 1, there were 67 roles filled.

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1 OEB STAFF INTERROGATORY 16

2 **6.0 Market Renewal Program**

3 **6.2** *Are the IESO's forecast 2018 operational costs for the Market Renewal Program*
4 *appropriate in the context of the scope and timing of the overall project?*

5 **Staff IR #16**

6 INTERROGATORY

7 Reference: Exhibit C, Tab 2, Schedule 1, Pg. 9

8 Preamble:

9 The 2018 MRP budget of \$16.7 million identified in Table 3: 2018 Market Renewal Program
10 Operating and Capital Budget represents an increase of 111% from the IESO's actual MRP costs
11 for 2017 of \$7.9 million. The IESO's MRP budget for 2017 was \$12 million. The IESO states that
12 the underspend in 2017 was the result of unused contingency and a slow ramp-up of resources.

13 Questions:

- 14 a) Please confirm if any capital projects were funded through the \$7.9 million spent on MRP
15 activities in 2017.
- 16 i. If yes, please identify the projects as well as the amounts spent on each.
- 17 b) The IESO's requested 2018 MRP budget is \$16.7 million. Please indicate the amount of the
18 requested budget spent on or committed to MRP activities in 2018 to-date. Please categorize
19 amounts by operating and capital expenditures.
- 20 c) Please provide an overall forecast of the amount of the requested 2018 MRP budget that the
21 IESO reasonably expects to spend. Please provide the forecast by capital and operating
22 expenditures.
- 23 d) As it relates to parts b) and c) of this question, please describe the rationale for any
24 significant deviance between budget and forecasts.

25 RESPONSE

- 26 a) No capital projects were funded through the \$7.9 million spent on MRP activities in 2017.
27 i. Not applicable.

1 b) The MRP operating and capital results at the end of June 2018 are shown in the table below:
 2

(In \$ millions)	Operating	Capital	Total
Compensation & Benefits	4.2	-	4.2
Professional & Consulting	1.5	-	1.5
Operating & Administration	0.4	0.5	0.9
Total	6.1	0.5	6.6

3
 4

5 c) The MRP operating and capital forecast for 2018 is shown in the table below:
 6

(In \$ millions)	Forecast	Budget	Variance
Operating			
Compensation & Benefits	9.2	7.4	1.8
Professional & Consulting	4.8	4.1	0.7
Operating & Administration	0.9	1.2	(0.3)
Total	14.9	12.7	2.2
Capital			
Compensation & Benefits	0.5	1.8	(1.3)
Professional & Consulting	-	1.5	(1.5)
Operating & Administration	0.7	0.7	-
Total	1.2	4.0	(2.8)
MRP Total			
Compensation & Benefits	9.7	9.2	0.5
Professional & Consulting	4.8	5.6	(0.8)
Operating & Administration	1.6	1.9	(0.3)
Total	16.1	16.7	(0.6)

7
 8

9 d) The operating forecast for MRP is \$14.9 million, which is \$2.2 million higher than
 10 planned. Resourcing challenges have led to the delay of high level design timelines.
 11 High level design for the energy work stream is forecasted to be completed in late 2018
 12 while the capacity work stream is forecasted to be completed in mid-2019. The
 13 completion of high level design is required before any significant capital work starts
 14 which is putting upward pressure on the operating budget.

15 Conversely, with the delay of high level designs, the program is forecasting to be below
 16 its capital budget by \$2.8 million in 2018.

1

ENERGY PROBE INTERROGATORY 13

2 6.2 *Are the IESO's forecast 2018 operational costs for the Market Renewal Program appropriate in*
3 *the context of the scope and timing of the overall project?*

4 **EP IR #13**

5 INTERROGATORY

6 Exhibit C, Tab 2, Schedule 1, page 12, Table 7

7 Please provide a six-month update (actual versus budget) to the MRP Incremental Staffing
8 figures.

9 RESPONSE

10 Exhibit C-2-1, page 12, includes Tables 7 and 8. The 2018 MRP Budgeted Resources for 2018 was
11 43.0 annual average FTEs for Incremental Resources plus 16.0 annual average FTEs for Partial
12 Resources for a total of 59.0 annual average FTEs. The 59.0 annual average FTEs corresponds to
13 approximately 68 roles to be filled at the end of 2018.

14 As of June 30, 2018, there were 62 roles filled on the MRP, plus contributions of approximately
15 5 annual average FTEs in support from resources within the various line businesses providing
16 partial contributions.

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1 SEC INTERROGATORY 20

2 **6.2-SEC-20**

3 INTERROGATORY

4 Please provide a copy of all material provided to the Board of Directors and Senior
5 Management regarding Market Renewal work plans, approvals, budgets and updates.

6 RESPONSE

7 The IESO has established a project steering committee for the Market Renewal Program (MRP),
8 known as the Market Renewal Executive Steering Committee (MRESC). Its members are
9 comprised of the IESO's executive leadership team, and the committee meets every month to
10 provide input and recommendations with respect to oversight of the overall program
11 performance. In 2018, the MRP team has worked to develop standardized monthly reports that
12 provide status updates for program cost, schedule, and risk. The first reports were provided to
13 the MRESC in April 2018 based on data as of the end of March. These reports are expected to
14 continue to evolve throughout 2018 as the program completes additional planning activities in
15 advance of 2019.

16 Further, the Market Renewal Program is a standing item on both the Board of Directors and
17 Audit Committee, a sub-committee of the Board of Directors, agendas to ensure that there is
18 appropriate oversight. A Board of Directors dashboard has been developed that is provided to
19 both the Board of Directors and the Audit Committee to provide point in time status updates
20 for program cost, schedule, and risk. The first dashboard was provided to the Board of
21 Directors and Audit Committee at their June meetings based on data as of the end of May. The
22 dashboard reports are expected to continue to evolve throughout 2018 as the program
23 completes additional planning activities in advance of 2019.

24 The IESO has provided the reports discussed above as attachments to this exhibit as follows
25 (certain personal information, such as names and phone numbers, have been redacted; this
26 information is not relevant to this proceeding):

27 *MRESC Reporting 2018*

28 Attachment 1 – MRP Program Charter 2.0 February 2018

29 Attachment 2 – MRESC Terms of Reference July 31, 2018

Filed: August 31, 2018
EB-2018-0143
Exhibit I
Tab 6.2
Schedule 8.20 SEC 20
Plus Attachment(s)
Page 2 of 2

- 1 Attachment 3 – MRP 2018 MRESC Cost Report March 2018
- 2 Attachment 4 – MRP 2018 MRESC Schedule Report March 2018 Revised
- 3 Attachment 5 – MRP 2018 MRESC Cost Report April 30, 2018
- 4 Attachment 6 – MRP 2018 MRESC Schedule Report April 30, 2018
- 5 Attachment 7 – MRP 2018 MRESC Risk Report April 30, 2018
- 6 Attachment 8 – MRP 2018 MRESC Cost Report May 31, 2018
- 7 Attachment 9 – MRP 2018 MRESC Schedule Report May 31, 2018
- 8 Attachment 10 – MRP 2018 MRESC Risk Report May 31, 2018
- 9 Attachment 11 – MRP 2018 MRESC Cost Report June 30, 2018
- 10 Attachment 12 – MRP 2018 MRESC Schedule Report June 30, 2018
- 11 Attachment 13 – MRP 2018 MRESC Risk Report June 30, 2018
- 12 Attachment 14 – MRP 2018 MRESC Cost Report July 31, 2018
- 13 Attachment 15 – MRP 2018 MRESC Schedule Report July 31, 2018
- 14 Attachment 16 – MRP 2018 MRESC Risk Report July 31, 2018
- 15 Attachment 17 – Program Status Summary August 2018
- 16 *Board of Directors Reporting 2018*
- 17 Attachment 18 – Market Renewal Dashboard June 2018
- 18 Attachment 19 – Market Renewal Dashboard August 2018

Market Renewal Program – Program Charter (IESO Internal)

Program Charter
TOR-4

Issue: 2.0

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Issue	Reason for Issue	Date
0.1	Draft for initial review	Sept 08, 2017
0.2	Draft for MRESC review	Sept 12, 2017
1.0	Major version for approval	Sept 22, 2017
2.0	Major version for approval post organizational changes	Feb 28, 2018

Related Documents

Document Title	Document ID
Independent Electricity System Operator (2017), <i>2017-2019 Business Plan</i> , February 1, 2017	n/a
Independent Electricity System Operator (2017), <i>2017 Revenue Requirement Submission</i> , April 21, 2017	n/a
Independent Electricity System Operator (2017), <i>Project Brief – Market Renewal Program</i> , March 3, 2017	Project ID #378

References

Document Title	Document ID
Market Design Committee (1999), <i>Final Report of the Market Design Committee</i> , January 29, 1999	n/a
Independent Electricity System Operator (IESO) (2008), <i>Day-ahead Market Evolution Preliminary Assessment</i> , May 6, 2008	n/a
The Brattle Group (2017), <i>The Future of Ontario's Electricity Market: A Benefits Case Assessment of the Market Renewal Project</i> , April 20, 2017	n/a

Document Control

Authors

Prepared By	Role
	Senior Program Manager
	I&TS Lead
	Project Officer

Enterprise Change (PMO) Review

Reviewed By	Role
	Supervisor, Project Management Office

Content Reviewers

Reviewed By	Role
	Director – Program Design & External Stakeholder Management
	Director – Program Implementation
	MRESC Member
	MRESC Member
	MRESC Member
	MRESC Member
	MRESC Member

Approvals

Approved By	Role
	MRESC Member (Chair), Program Sponsor
	President & CEO

Distribution List

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Citadel	IESO
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1. Executive Summary

The Market Renewal Program (MRP or the Program) will renew the foundations of Ontario's electricity market. The initiatives within the MRP will address known issues with the current market design and prepare the province for the electricity sector of tomorrow. Enhancements made as a result of the Program will lead to lower costs for consumers and new opportunities for market participants.

The MRP includes four projects that will enable the province to more efficiently meet demand over the near and longer terms. The scope of the Program includes the following changes:

- Introduction of a **Day-Ahead Market** based on the implementation of a **Single Schedule Market** to provide greater certainty to market participants and lower the cost of producing electricity.
- Reduction in the cost of scheduling and dispatching resources to meet demand as it changes from hour to hour and minute to minute through **Enhanced Real-Time Unit Commitment**.
- Improvement in the way Ontario procures resources to meet its longer-term supply needs by implementing an **Incremental Capacity Auction** and enabling capacity trade with neighbouring jurisdictions.

A benefits case prepared by the Brattle Group estimated the ten-year net present value of the MRP at \$2.2 billion to \$5.2 billion dollars, with benefits shared by both customers and Market Participants¹.

The Program is estimated to span an eight year period (2017 to 2024) and cost approximately \$200M. Significant consideration has gone into determining the best approaches to stakeholder engagement, governance, and program management. Program objectives, milestones, and deliverables are beginning to take shape and will be further defined in the Program Management Plan.

This document was drafted in September 2017 but not approved at that time due to organizational changes that were underway. Updates to the roadmap, milestones, and budget have been included in the more current Program Management Plan. The Program Charter's value is best focused as an authorization document, and as such retroactive changes have not been incorporated. The Program Management Plan supersedes the Charter and will be updated periodically as significant changes to the MRP occur.

– End of Section –

¹ The Brattle Group (2017).

2. Background

The current electricity market was designed in the late 1990s and launched in 2002. Over the years, various inefficiencies with the market design have been identified and extensively studied through the work of the Market Surveillance Panel, the Electricity Market Forum, the IESO, and stakeholders.

Many of the market inefficiencies identified to date stem from the existing two-schedule system. When the electricity market opened in 2002, the two-schedule system was intended to be a transitional mechanism to a single-schedule, locational energy market. The Market Design Committee that originally recommended the two schedule system recognized its limitations from the outset and recommended it only be used for 18 months.² However, the system has endured much longer than anticipated and remains essentially unchanged today.

Concerns regarding the two-schedule system generally relate to the pricing and operational inconsistencies that occur between the unconstrained and constrained schedules, which result in inefficient dispatch and unnecessarily high system-wide costs. The IESO has addressed some problems through modifications of specific market rules within the existing market framework, but other, more fundamental, flaws cannot be addressed without replacing the existing two-schedule design.

In addition to the inherent inefficiencies of the two-schedule system, its continued existence has made implementing other market reforms, such as instituting a financially binding day-ahead market, exceptionally challenging. Experience from other wholesale electricity markets shows that the introduction of a financially binding day-ahead market can produce significant, quantifiable efficiency gains. Additionally, the IESO and its stakeholders have studied possible day-ahead market designs since 2003, but have thus far found the explored options to be infeasible due to complexities arising from the two-schedule system.

The IESO introduced a partial solution through the non-market day-ahead commitment process for gas generators and importers in 2006 (as updated in 2011)³. However, the current day-ahead process does not provide commitment opportunities for all resource types and it does not provide efficient incentives to generation resources because it is not financially-binding. Replacing the two-schedule system with a single-schedule system would simultaneously address many of the inefficiencies of the current system and provide the foundation required for more efficient market reforms, such as a financially binding day-ahead market.

The existing approach to capacity planning and long-term supply contracts has also suffered from a range of problems and growing costs. Under the current system, the IESO (and the former Ontario Power Authority) signed a large number of long-term supply contracts procured on a technology-specific basis under government directives. This approach helped the province meet its resource adequacy needs and enabled rapid de-carbonization, but it has contributed to excess capacity and associated costs.

² Market Design Committee (1999), pp 1-9.

³ See IESO (2008) for a detailed discussion of this partial solution.

Recognizing the challenges of the current approach, the IESO has implemented a demand response auction as a first step toward a more competitive and transparent approach to capacity procurement. The IESO is also making efforts to enable capacity exports that will generate revenue to the province and is planning to enable cost-effective capacity imports in the future. The next step in the evolution toward competitive, technology-neutral procurements is moving to an incremental capacity auction, which the IESO is looking to institute. By more effectively harnessing competition among different resource types and between new and existing technologies, a capacity auction will reduce the cost of meeting resource adequacy needs for ratepayers.

Beyond the inefficiencies of the current market design, changes in the electricity sector and generation mix are also necessitating further market reforms. The elimination of coal, integration of renewables, increases in distributed resources, and growing role of demand-side resources has dramatically changed the dynamics of Ontario's electricity system. It has become clear to the IESO and its stakeholders that the existing market design is not able to make efficient use of the unique operating characteristics of the province's current, mostly emissions-free, generation mix. Oversupply during low-demand and high-baseload-generation hours have forced the IESO to curtail substantial amounts of solar, nuclear, wind, and hydroelectric generation to maintain a reliable system and balance supply and demand. The two-schedule system contributes to uneconomic commitment and dispatch of higher-cost resources. Trade with neighbors over interties, which could lower costs for Ontario customers, is underutilized. Changes to how the electricity system is operated must be made in order to maximize current and future operational efficiency.

While the IESO and its stakeholders have worked together over the last decade to incrementally improve different aspects of the market, it is apparent that more foundational market changes are necessary to meet the very different circumstances of today as well as tomorrow's electricity marketplace. Maintaining the status quo would lock in current inefficiencies and gaming opportunities, drive higher than necessary costs, and limit the ability of the market to integrate new, emerging technologies reliably and cost effectively. With a stable supply situation that is expected to continue into the mid-2020s, now is an opportune time for Ontario to consider and implement needed market design changes that would realize significant benefits for the province.

2.1 Benefits Case

From the summer of 2016 to early 2017, the IESO worked closely with expert consultants and stakeholders to produce an assessment of the potential costs and benefits of Market Renewal. The benefits case was developed by the Brattle Group and draws upon past Ontario studies, the experience of other jurisdictions that have made comparable market changes, and extensive stakeholder consultation. Key findings from the benefits case are:

- The estimated province-wide efficiency and customer benefits of Market Renewal significantly outweigh estimated implementation costs by a factor of between 11 and 26 to 1, with a ten-year present value of net benefits ranging from \$2.2 billion to \$5.2 billion. These province-wide benefits would be shared by both customers and Market Participants.
- The benefits from Market Renewal are likely to grow over time as Ontario's electricity sector continues to decarbonize, as contracts expire, and as the sector becomes more distributed in nature.
- Market Renewal will better prepare Ontario for the future by creating a competitive framework for effectively incorporating new and emerging technologies.
- The IESO and stakeholders have substantial opportunities to enhance the benefit-cost ratio of Market Renewal by learning from the experiences of other jurisdictions and applying them to Ontario's unique context.

2.2 Program Mandate

Maintenance and improvement of the electricity market falls within the mandate of the IESO. As such, the Market Renewal Program was included as part of regular business activities in the IESO's original 2017-19 Business Plan submission to the Ministry of Energy.

At the Minister's request, to provide greater transparency into Program resourcing requirements and costs, the Business Plan was revised to identify the Market Renewal Program as a unique project, separate from the IESO's ongoing business activities.

On March 21, 2017 the Minister approved the revised Business Plan. The Business Plan was subsequently filed with the Ontario Energy Board (OEB) as part of the IESO's proposed expenditure and Revenue Requirement Submission.

The full content of the Minister's response to the original Business Plan, and subsequent approval of the revised plan, can be found in [Appendix A](#) and [Appendix B](#), respectively.

– End of Section –

3. Program Overview

The Market Renewal Program will deliver a more efficient, stable marketplace with competitive and transparent mechanisms that meet system and participant needs at the lowest cost.

To meet this overarching goal, the Program will include the following improvements to the way the IESO schedules energy, procures supply resources, and manages variability. The specific improvements include:

- A single-schedule market;
- A financially binding day-ahead market;
- Enhanced real-time unit commitment; and
- A capacity auction, including the import and export of capacity.

3.1 Scope

Generally speaking, the term “Market Renewal” or “market renewal” applies to all IESO initiatives that are related to the evolution of Ontario’s electricity system. However, not all market renewal initiatives are within the scope of the Market Renewal Program. The MRP will deliver a specific subset of market renewal initiatives, with other initiatives occurring before, after, and in parallel.

The following projects fall within the scope of the Market Renewal Program⁴:

- Single Schedule Market (SSM)
- Day-Ahead Market (DAM)
- Enhanced Real-Time Unit Commitment (ERUC)
- Incremental Capacity Auction (ICA)

As illustrated in Figure 3-1, there are a number of active initiatives at the IESO that are related to the MRP but that are outside of its scope. These projects have close interdependencies with the Program and will be implemented prior to, or in parallel with, the MRP.

The strategic projects being undertaken by the Markets group (e.g. Enabling System Flexibility) are directly related to market renewal activities, but will be delivered separately in order to provide intermediate improvements until the full Program can be implemented.

Additional strategic projects that have a direct tie to the MRP (e.g. Commercial Reconciliation System Replacement) are being driven by other business units and will require close coordination in order to manage the interdependencies.

Finally, there are other strategic and tactical projects that, while not directly related to the MRP, may impact, or be impacted by, the Program. Information will need to be regularly exchanged between these projects and the Program in order to ensure overall cohesion.

⁴ See Section 3.2 for a discussion of how these projects have been structured for delivery within the broader Market Renewal Program.

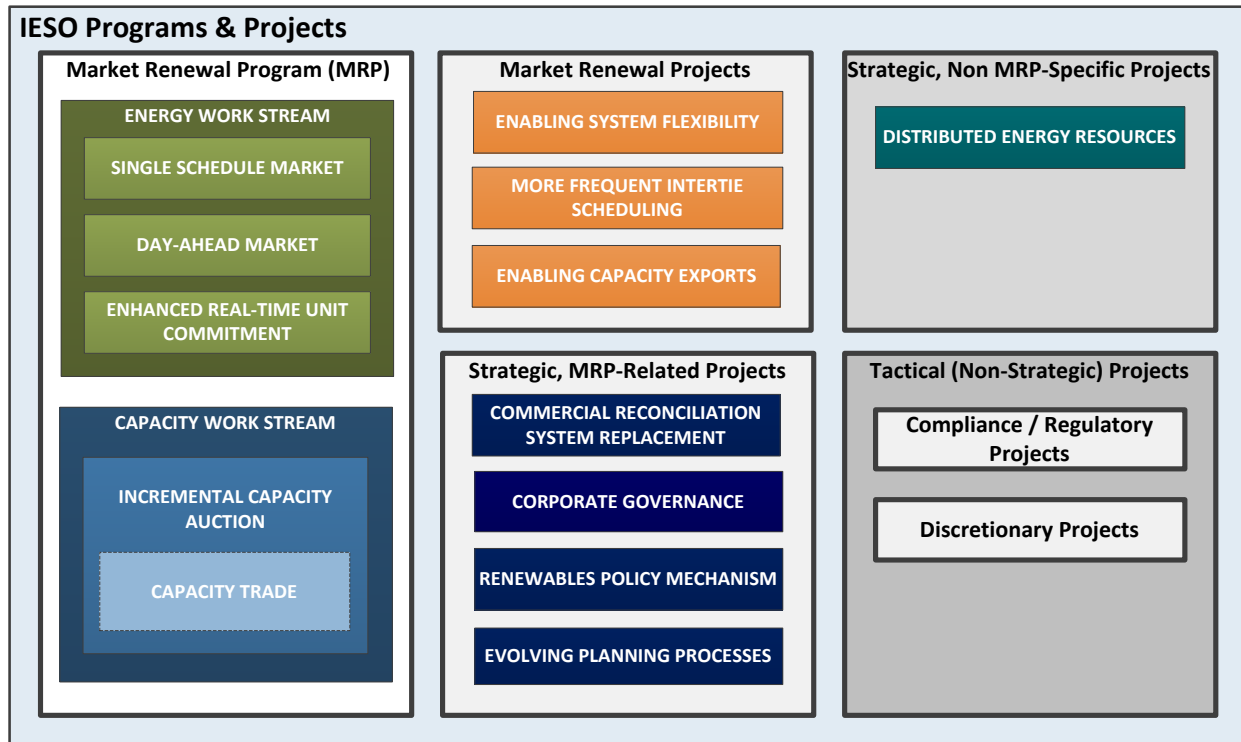


Figure 3-1: MRP and Related Initiatives

The list of projects related to the Market Renewal Program that may be implemented before, or at the same time as the Program will continue to evolve over the next several years. These initiatives may include, but are not limited to, additional projects related to electricity system operability.

To keep pace with changes in the sector, the IESO anticipates that additional market enhancements will follow implementation of the MRP.

3.2 Program Structure

Market Renewal has been structured as a program with multiple work streams and projects. The IESO has made specific organizational changes to enable the effective management of the Program while continuing to deliver business as usual activities.

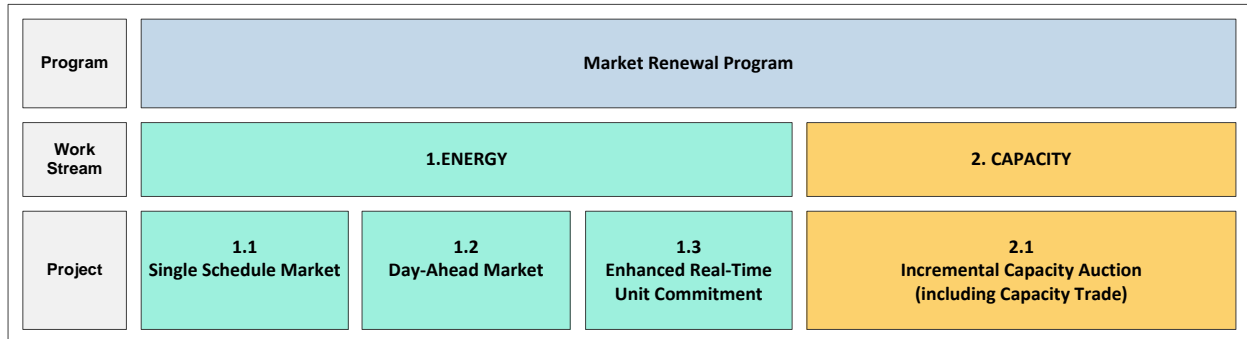


Figure 3-2: MRP Program Structure

The MRP consists of two work streams: Energy and Capacity. Each work stream contains multiple projects, as illustrated in Figure 3-2. While the elements of each project are unique, they are inter-related and will require careful coordination as design and implementation decisions are made.

3.3 Program Roadmap

The Market Renewal Program roadmap has been divided into three major phases, with a total estimated duration of eight years (2017 to 2024). The duration and timing of each Program phase is as follows:

Phase:	FY Period
1. High Level Design	2017 to 2018
2. Detailed Design & Implementation	2018 to 2022
3. Contingency & Post-Production Support	2022 to 2024

The time periods encompassed by these three phases include numerous milestones for all six projects in the Program. Refer to [Appendix C](#) for further details on the timing and activities of each phase.

3.4 Business Objectives

The Market Renewal Program supports several of the goals and strategic objectives set out in the IESO's 2016-2020 Strategic Plan. (Refer to [Appendix D](#) for draft Business Objectives; these objectives will be refined in the Program Management Plan). While the MRP touches on the IESO's objectives of delivering superior reliability, performance, and being a trusted advisor, the majority of the Program's objectives are focused on driving to a more efficient and sustainable marketplace.

The following two sub-sections outline the objectives for each of the MRP work streams. These objectives have not yet been finalized but the descriptions below provide an indication of what each work stream will achieve.

3.4.1 Energy Work Stream

The energy work stream aims to:

- E1. Improve the alignment between energy price signals and system needs.
- E2. Improve real-time operational certainty for market participants and the IESO.
- E3. Improve price certainty for market participants ahead of real-time.
- E4. Reduce out-of-market payments.
- E5. Reduce the frequency of operator interventions.
- E6. Eliminate gaming opportunities created by a two schedule system.

3.4.2 Capacity Work Stream

The capacity work stream aims to:

- C1. Reduce the multi-year average per MW cost of meeting incremental capacity needs.
- C2. Improve the alignment of zonal system adequacy needs with available capacity.

3.5 Program Brief

The Market Renewal Program Brief was submitted at the Q1 2017 Project & Portfolio Management Team (PPMT) meeting and ranked as a high priority organizational project.

– End of Section –

4. Stakeholders and Resources

A broad range of internal and external resources will be required to support the Market Renewal Program. The following sections provide a high-level outline of the relevant stakeholders.

4.1 Internal Program Stakeholders

Table 4-1 identifies the various internal stakeholder groups that will be involved in, or impacted by, the MRP. Impacted stakeholder groups may change during the duration and lifecycle of the Program.

Table 4-1: Internal Stakeholder Groups

Role/Position	Organization	Title	Name(s)
Corporate Governance	IESO	Board of Directors	
Corporate Governance	IESO	President and CEO	
Program Sponsor	IESO	Vice President, Planning, Acquisition and Operations	
Program Steering Committee	IESO	Market Renewal Executive Steering Committee (MRESC)	
Program Design & External Stakeholder Management	IESO	Director, Markets & Procurement	
Program Implementation	IESO	Director, Market Renewal Operations	
MRP Director's Forum	IESO	All IESO Directors	
Functional groups most affected by the output of the MRP	IESO	Market & System Operations Planning Settlements Information & Technology Services Market Assessment and Compliance Division Contract Management	

Role/Position	Organization	Title	Name(s)
Functional groups supporting the MRP implementation	IESO	Regulatory Affairs Legal Finance Facilities	
Employee union representation	Society	Vice-President, IESO Local	
Employee union representation	PWU	Chief Steward, Sector 3	
Employees	IESO	All employees	

4.1.1 Program Organization Chart

[Appendix E](#) outlines the most recent organization structure for the High Level Design phase.

The organization chart will continue to evolve throughout the course of the Program in order to best meet the needs of each phase.

4.2 External Program Stakeholders

Seeking, incorporating, and responding to stakeholder feedback is important to the IESO.

Table 4-2 identifies the various external stakeholder groups that will be involved in, or impacted by, the MRP. Impacted stakeholder groups may change during the lifecycle of the program.

Table 4-2: External Stakeholder Groups

Role/Position	Organization
Regulator	Ontario Energy Board (OEB)
Market Participants	
Potential Market Participants	
Industry Associations	Association of Power Producers Ontario (APPrO)
	Canadian Solar Industry Association (CanSIA)
	Ontario Waterpower Association (OWA)
	Canadian Wind Energy Association (CANWEA)
	Association of Major Power Consumers (AMPCO)
	Ontario Energy Association (OEA)

Role/Position	Organization
	Ontario Sustainable Energy Association (OSEA)
	Vulnerable Energy Consumers Coalition (VECC)
	Building Owners and Managers Association (BOMA)
IESO Working Committees	Market Renewal Working Group (MRWG) See Appendix F for full membership list.
	IESO Stakeholder Advisory Committee (SAC)
	Technical Panel (TP)
	CEO's Roundtable
Interested Parties	Energy Probe
Government	Premier/Premier's Office
	Minister of Energy/Minister's Office
	Deputy Minister of Energy/Deputy Minister's Office
Low Volume Consumers	
General Public	
Media	

– End of Section –

5. Milestones and Deliverables

At this point in Program planning, detailed milestones and deliverables have largely only been established for the High Level Design phase. Additionally, project-specific milestones have only been established for the two projects that were initiated first: Single Schedule Market and Incremental Capacity Auction. Further details on milestones and deliverables for other Program phases and projects will be included in the Program Management Plan. The target delivery date for the Program Management Plan is Q1 2018.

5.1 Program Management Life Cycle Artifacts

Figure 5-1 illustrates the timeline of Project Management Life Cycle (PMLC) artifacts that will be produced leading up to approval of the Program Business Case. Most artifacts will be developed at the Program level, with the Visioning Outcomes Checklist (VOC) completed for each work stream. A High Level Design document and Project Execution Plan will also be prepared for each project.

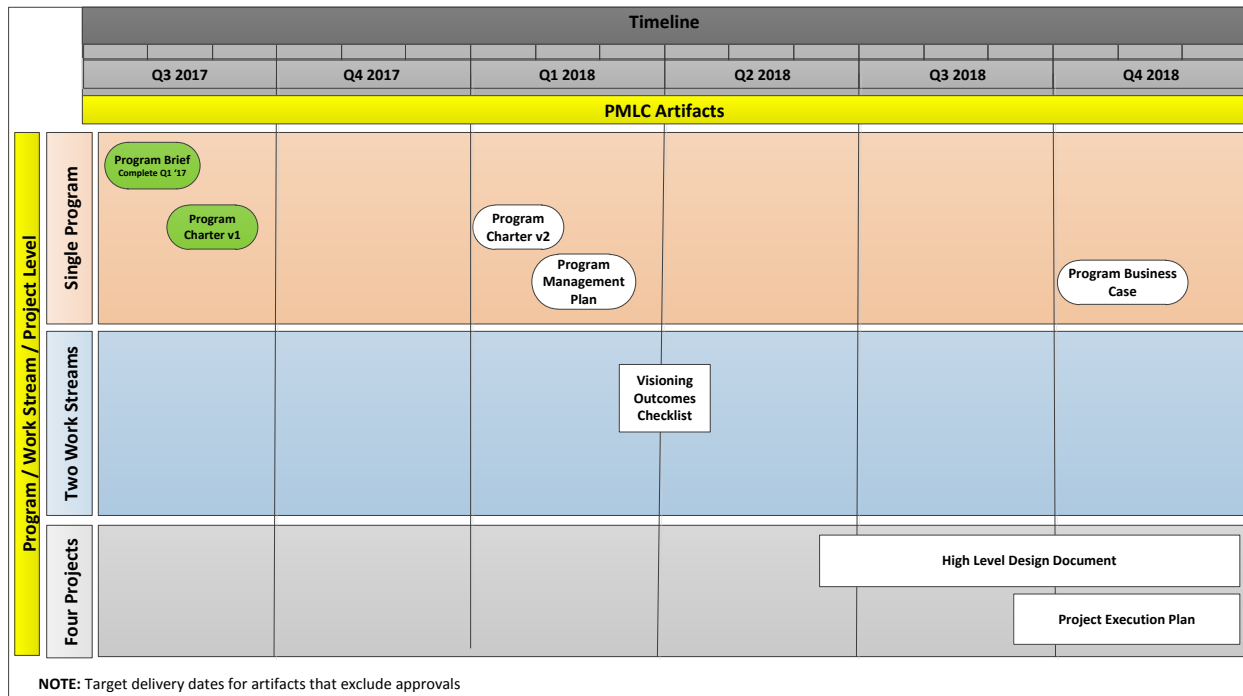


Figure 5-1: Timeline of MRP Artifacts

5.2 Program Design Milestones & Deliverables

Table 5-2 lists the milestones and deliverables that relate to Program design for the first two projects to initiate - the Single Schedule Market and Incremental Capacity Auction. These deliverables define *what* the Program must accomplish in terms of user requirements and products/services. Milestones for the other projects will be included in the Program plan.

Table 5-2: MRP Program Requirements/Deliverables

Program/workstream/Project	Category	Milestone	Estimated Target Date	Revised Date	Actual Date	Status
Single Schedule Market	High-Level Design	Stakeholder Engagement - Intro & Fundamentals (Start)	02-May-17		02-May-17	Completed
Incremental Capacity Auction	High-Level Design	Stakeholder Engagement - Intro & Fundamentals (Start)	18-May-17		18-May-17	Completed
Single Schedule Market	High-Level Design	Stakeholder Engagement - Intro & Fundamentals (End)	29-Jun-17		29-Jun-17	Completed
Incremental Capacity Auction	High-Level Design	Stakeholder Engagement - Intro & Fundamentals (End)	20-Jul-17		20-Jul-17	Completed
Single Schedule Market	High-Level Design	Stakeholder Engagement - Options & Recommendations (Start)	27-Jul-17		27-Jul-17	Completed
Incremental Capacity Auction	High-Level Design	Stakeholder Engagement - Options & Recommendations (Start)	16-Aug-17		16-Aug-17	Completed
Single Schedule Market	High-Level Design	Stakeholder Engagement - Options & Recommendations (End)	18-Jan-18	31-Jan-18	30-Jan-18	Completed
Incremental Capacity Auction	High-Level Design	RFP for Auction Engine (Start)	01-Feb-18			Not Started
Single Schedule Market	High-Level Design	RFP for DSO Vendor (Start)	01-Feb-18			Not Started
Single Schedule Market	High-Level Design	Stakeholder Engagement - Design Decisions (Start)	29-Mar-18			Not Started
Incremental Capacity Auction	High-Level Design	Stakeholder Engagement - Options & Recommendations (End)	17-Apr-18			Not Started
Single Schedule Market	High-Level Design	Release RFP for DSO Vendor	10-May-18			Not Started
Single Schedule Market	High-Level Design	Stakeholder Engagement - Design Decisions (End)	23-May-18			Not Started
Single Schedule Market	High-Level Design	High-Level Design Document for Review	01-Jun-18			Not Started
Single Schedule Market	Detailed Design	Detailed Design (Start)	01-Jul-18			Not Started
Incremental Capacity Auction	High-Level Design	RFP for Auction Engine (End)	01-Jul-18			Not Started
Single Schedule Market	High-Level Design	RFP for DSO Vendor (End)	15-Jul-18			Not Started
Incremental Capacity Auction	High-Level Design	Stakeholder Engagement - Design Decisions (Start)	02-Aug-18			Not Started
Incremental Capacity Auction	High-Level Design	High-Level Design Document	10-Sep-18			Not Started
Incremental Capacity Auction	High-Level Design	Stakeholder Engagement - Design Decisions (End)	17-Sep-18			Not Started
Incremental Capacity Auction	Detailed Design	Business Requirements (BRD/User Stories) Start	01-Oct-18			Not Started
Incremental Capacity Auction	Detailed Design	Detailed Design (Start)	01-Oct-18			Not Started
Single Schedule Market	Detailed Design	Business Requirements (BRD/User Stories) Start	01-Jan-19			Not Started
Incremental Capacity Auction	Detailed Design	Business Requirements (BRD/User Stories) End	01-Jun-19			Not Started
Incremental Capacity Auction	Detailed Design	System Specifications (Start)	01-Jun-19			Not Started
Incremental Capacity Auction	Detailed Design	System Specifications (End)	01-Jul-19			Not Started
Single Schedule Market	Detailed Design	System Specifications (Start)	01-Jul-19			Not Started
Single Schedule Market	Detailed Design	Business Requirements (BRD/User Stories) End	01-Sep-19			Not Started
Incremental Capacity Auction	Detailed Design	Detailed Design (End)	01-Oct-19			Not Started
Single Schedule Market	Detailed Design	Detailed Design (End)	01-Oct-19			Not Started
Single Schedule Market	Detailed Design	System Specifications (End)	01-Nov-19			Not Started

5.3 Program Management Milestones & Deliverables

Table 5-3 lists some of the high level milestones and deliverables that relate to Program management. These deliverables define *how* the Program will deliver user requirements and products/services. Additional detail will be provided in the Program management plan.

Table 5-3: MRP Program Management Milestones and Deliverables

Program/workstream/Project	Category	Milestone	Estimated Target Date	Revised Date	Actual Date	Status
Market Renewal Program	PMO	Project Brief Ranking	29-Mar-17		29-Mar-17	Completed
Market Renewal Program	PMO	Sign Lease for UMR location for MRP Team	29-May-17	01-Aug-17	11-Aug-17	Completed
Market Renewal Program	PMO	Finalise Risk Audit RFP	04-Jul-17		04-Jul-17	Completed
Market Renewal Program	PMO	Finalise requirements for furniture RFP	04-Aug-17		04-Aug-17	Completed
Market Renewal Program	PMO	Program Charter ver 1	30-Sep-17		22-Sep-17	Completed
Market Renewal Program	PMO	Business Case Approval - UMR Relocation & Furniture	15-Oct-17		15-Oct-17	Completed
Market Renewal Program	PMO	Stakeholder Engagement Program Plan	30-Oct-17		30-Oct-17	Completed
Single Schedule Market	PMO	RACI	04-Nov-17		04-Nov-17	Completed
Incremental Capacity Auction	PMO	RACI for Design Elements	04-Nov-17		04-Nov-17	Completed
Market Renewal Program	PMO	Program Charter ver 2	30-Jan-18		28-Feb-18	Completed
Market Renewal Program	PMO	Program Management Plan	30-Sep-17	12-Jan-18		Delayed
Capacity Workstream	PMO	Visioning Outcomes Checklist	01-Mar-18			Not Started
Energy Workstream	PMO	Visioning Outcomes Checklist	01-Mar-18			Not Started
Market Renewal Program	PMO	Move to new location for MRP Team	05-Mar-18			On Schedule
Market Renewal Program	PMO	Business Case Approval	01-Oct-18			Not Started
Incremental Capacity Auction	PMO	Project Execution Plan Approval	03-Dec-18			Not Started
Single Schedule Market	PMO	Project Execution Plan Approval	03-Dec-18			Not Started
Incremental Capacity Auction	Testing	Test Cases Approval Start	01-Jul-19			Not Started
Incremental Capacity Auction	Testing	Market Trials and Training - Start	04-Sep-19			Not Started
Market Renewal Program	Testing	Test Plan / Strategy Approval	30-Nov-19			Not Started
Single Schedule Market	Testing	Test Cases Approval Start	01-Feb-20			Not Started
Single Schedule Market	Testing	Test Cases Approval End	01-Apr-20			Not Started
Incremental Capacity Auction	In Service	Conduct Auction	02-Apr-20			Not Started
Incremental Capacity Auction	Testing	Test Cases Approval End	01-Oct-20			Not Started
Single Schedule Market	Testing	FAT Start	01-Dec-20			Not Started
Single Schedule Market	Testing	FAT End	01-Feb-21			Not Started
Single Schedule Market	Testing	SAT Start	01-May-21			Not Started
Incremental Capacity Auction	In Service	In Service Date for Energy Market	01-Jul-21			Not Started
Single Schedule Market	Testing	SAT End	01-Jul-21			Not Started
Incremental Capacity Auction	Testing	Market Trials and Training - End	04-Jul-21			Not Started
Single Schedule Market	Testing	SIT Start	01-Aug-21			Not Started
Single Schedule Market	Testing	SIT End	01-Sep-21			Not Started
Single Schedule Market	Testing	UAT Start	01-Oct-21			Not Started
Single Schedule Market	Testing	Market Trials and Training - Start	03-Oct-21			Not Started
Single Schedule Market	Testing	UAT End	01-Dec-21			Not Started
Single Schedule Market	Testing	SBX Deployment	01-Jan-22			Not Started
Single Schedule Market	Testing	Market Trials and Training - End	03-May-22			Not Started
Single Schedule Market	In Service	In Service Date	01-Jun-22			Not Started
Incremental Capacity Auction	In Service	In Service Date - Contingency Date	01-Aug-22			Not Started
Single Schedule Market	In Service	In Service Date - Contingency Date	01-Sep-23			Not Started
Incremental Capacity Auction	In Service	Complete Production Fixes	01-Oct-23			Not Started
Single Schedule Market	In Service	Complete Production Fixes	01-Oct-24			Not Started

– End of Section –

6. Budget

The IESO's 2017-19 Business Plan identified the Market Renewal Program as a unique project, separate from ongoing business activities. Both the Business Plan and subsequent Revenue Requirement Submission to the OEB included specific allocations for both resources and budget to plan and deliver this project.

Due to the large scope and multiple unknowns at this stage of the Program, the initial funding required by the Program is an estimate. Additional funding may be requested / committed upon completion of the Program Business Case. The target delivery date for the Program Business Case is Q4 2018.

High-level initial budget costs of approximately \$200M are extended over eight years (2017 to 2024), spanning the following Program phases:

Phase:	FY Period
• High Level Design	2017 to 2018
• Detailed Design & Implementation	2018 to 2022
• Contingency & Post-Production Support	2022 to 2024

Table 6-1: Fiscal Year Program Budget (Operating and Capital)

FY	2017	2018	2019	2020	2021	2022	2023	2024
Annual Operating (\$M)	\$ 12.0	\$ 14.0	\$ 4.5	\$ 3.9	\$ 3.2	\$ 3.0	\$ 1.8	\$ 1.7
Annual Capital (\$M)	\$ 0.0	\$ 4.0	\$ 29.0	\$ 42.9	\$ 32.5	\$ 22.5	\$ 11.0	\$ 9.9
Annual Total (\$M)	\$ 12.0	\$ 18.0	\$ 33.5	\$ 46.8	\$ 35.7	\$ 25.5	\$ 12.8	\$ 11.6

Table 6-2: Cumulative Fiscal Year Program Budget (Operating and Capital)

FY	2017	2018	2019	2020	2021	2022	2023	2024
Cumulative Operating (\$M)	\$ 12.0	\$ 26.0	\$ 30.5	\$ 34.4	\$ 37.6	\$ 40.6	\$ 42.4	\$ 44.1
Cumulative Capital (\$M)	\$ 0.0	\$ 4.0	\$ 33.0	\$ 75.9	\$ 108.4	\$ 130.9	\$ 141.9	\$ 151.8
Cumulative Total (\$M)	\$ 12.0	\$ 30.0	\$ 63.5	\$ 110.3	\$ 146.0	\$ 171.5	\$ 184.3	\$ 195.9

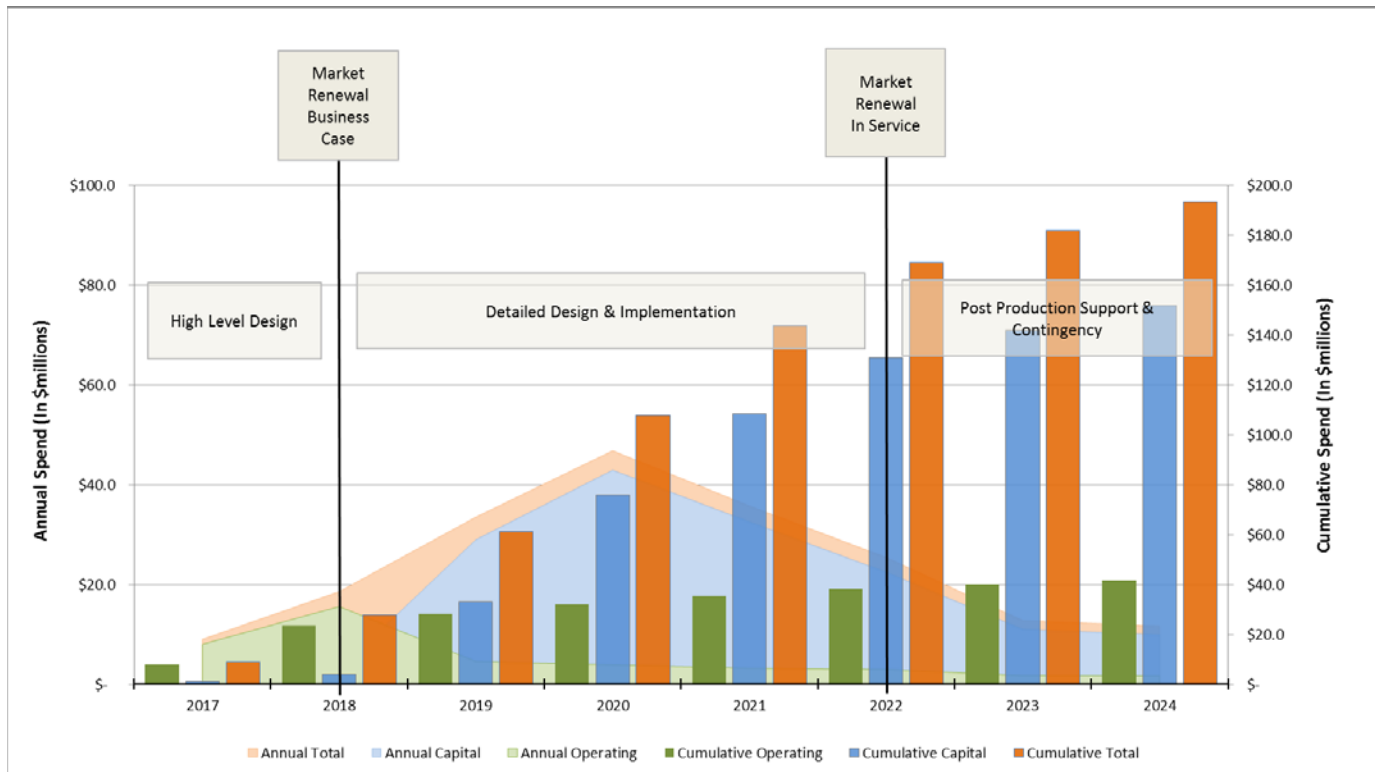


Figure 6-3: MRP Budget Annual and Cumulative Spend (Operating and Capital)

Figure 6-3 illustrates the annual spend as a shaded area while the cumulative spend is represented in columns over the eight year period.

– End of Section –

7. Program Risk

The scope, importance, impact, and visibility of the MRP naturally create and highlight risk, both specifically to the Program and to the broader IESO in general. These risks can be grouped into three key risk areas:

7.1.1 Environmental Risks

Immediate – Ongoing

The following are possible environmental risks related to the Program:

- Discontinued support for MRP as a result of a change in government policy direction;
- Loss of support from external stakeholders if they feel their concerns are not captured and addressed; and
- Undermined Program benefits as a result of government policy choices.

7.1.2 Product Risks

Product design, build, and implementation – Far term

The following are possible product risks related to the Program:

- Four projects, each with their own product risks;
- Risk associated with interactions and interplay between the various products (integration); and
- The need to complete other related projects (e.g. Commercial Reconciliation System Replacement) in parallel with MRP to ensure success.

7.1.3 Program Management Risks

Program management and delivery – Mid-term and ongoing

The following is a possible program management risk related to the Program:

- The classic project management risks (scope, time, cost, quality), possibly exacerbated by known aggravators; and
- Long-duration (multi-year project), multiple interrelated projects, IT & systems component, etc.

Risks are not static - they may emerge at different times and to different degrees. Risks will be managed throughout the various phases of the Program. Program Risk Management will include risk logs at both the program and project level.

– End of Section –

8. Program Governance

In December 2016 the Executive Leadership Team (ELT) was engaged in discussions around internal IESO governance and communication for the program. Subsequently in 2017 the Market Renewal Executive Steering Committee (MRESC) was formed. It consists of IESO VPs and it is intended to provide input and advice to the Program Sponsor.

An important consideration was that based on the scope and timelines required to deliver the program, an efficient internal structure was required to facilitate communications and ensure a cohesive organizational effort. The MRESC approved the MRP governance structure in February 2017, incorporating input and feedback received from the VP members. An updated MRP governance chart is included in [Appendix G](#).

The MRESC shapes the strategic direction for the Program by providing input and recommendations to the Chair (Market Renewal Program Sponsor) with respect to oversight of the overall Program performance. The MRESC will also act in an advisory role to establish overall principles for:

- i) How the MRP will be initiated, planned, executed, monitored & controlled and closed;
- ii) The approval and release of Program contingency (schedule, cost, and quality) at the overall Program level; and
- iii) The identification of risk, risk monitoring, and risk mitigation measures.

The MRESC will ensure alignment with the IESO's business strategic plan, multi-year and annual company business plans, and will support compliance with regulatory requirements. The MRESC will develop overall performance metrics for the MRP and monitor progress towards applicable IESO Corporate Performance Metrics (CPMs) and the IESO Regulatory Scorecard. The MRESC also monitors and resolves issues with strategic alliances, and monitors and reviews overall strategies for the MRP.

The MRESC has executive management responsibility for the relationship between the business and the MRP. The MRESC also acts as the highest escalation point for all issues related to the MRP.

All decisions are at the discretion of the MRP Sponsor, acting in compliance with the IESO's Organizational Authority Register (OAR), and reporting to the President and CEO and IESO Board of Directors. The MRP Sponsor will take into consideration input, recommendations and advice from the MRESC members when making any decisions.

– End of Section –

Appendix A Ministry Request for Revised Business Plan

Ministry of Energy

Office of the Minister

4th Floor, Hearst Block
900 Bay Street
Toronto ON M7A 2E1
Tel.: 416-327-6758
Fax: 416-327-6754

Ministère de l'Énergie

Bureau du ministre

4^e étage, édifice Hearst
900, rue Bay
Toronto ON M7A 2E1
Tél. : 416 327-6758
Télééc. : 416 327-6754



DEC 08 2016

Mr. Bruce Campbell
President and CEO
Independent Electricity System Operator
1600-120 Adelaide Street West
Toronto ON M5H 1T1

Dear Mr. Campbell:

Thank you for submitting the Independent Electricity System Operator's (IESO) proposed 2017-19 Business Plan (the Plan) on September 2, 2016 for my review.

The Ministry of Energy has reviewed the Plan, and while we are satisfied with its overall strategic direction, we would like to refer the Plan back to you for further consideration and refinement.

We appreciate your continued commitment to managing costs and your efforts to maximize existing resources, including achieving the expected merger synergy savings of \$5.3M in 2015 and progressing well towards the same savings target in 2016. However, the ministry asks that you resubmit the Plan to include resourcing for the Market Renewal project that the IESO is currently undertaking.

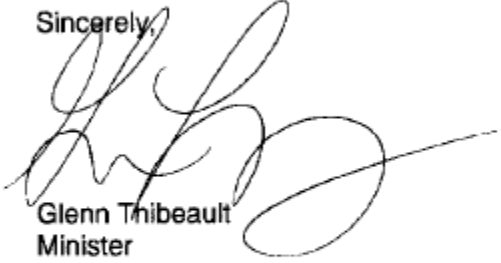
In particular, the ministry would like to ensure that the Plan outlines any resourcing requirements needed to deliver the emerging priority to drive further efficiency in the energy markets. Market renewal is a pressing need and the IESO has already begun the important work of consulting with stakeholders on the work plan to renew Ontario's electricity market design. Please ensure that the IESO's business plan includes appropriate resources needed for this important initiative.

The pace of change in the energy sector is fast. The government is embarking on the development of the Long-term Energy Plan 2017 (LTEP) that is expected to set a renewed direction for the energy sector. The passage of the *Energy Statute Law Amendment Act, 2016* solidifies the important role of the IESO in the province's long-term energy planning. I will continue to look to the IESO to play an important role in the development and implementation of the LTEP.

.../cont'd

I look forward to working with IESO on the opportunities that lie ahead. Please submit a revised 2017-2019 Business Plan by February 1, 2017.

Sincerely,



Glenn Thibeault
Minister

c: Tim O'Neill, Chair, IESO
c: Serge Imbrogno, Deputy Minister
c: Michael Reid, ADM, Strategic Network & Agency Policy, Ministry of Energy

Appendix B Ministry Approval of 2017-19 Business Plan

Ministry of Energy
Office of the Minister
4th Floor, Hearst Block
900 Bay Street
Toronto ON M7A 2E1
Tel.: 416-327-6758
Fax: 416-327-6754

Ministère de l'Énergie
Bureau du ministre
4^e étage, édifice Hearst
900, rue Bay
Toronto ON M7A 2E1
Tél. : 416 327-6758
Téléco. : 416 327-6754



MAR 21 2017

Mr. Bruce Campbell
President and CEO
The Independent Electricity System Operator
1600-120 Adelaide Street West
Toronto ON M5H 1T1

MC-2017-549
Office of the President & CEO
RECEIVED

MAR 24 2017

Independent Electricity
System Operator

Dear Mr. Campbell: *Bruce*

Thank you for resubmitting the Independent Electricity System Operator's (IESO) 2017-2019 Business Plan (the Plan) on February 1, 2017, for my review.

The ministry has reviewed the revised Business Plan and Budget, which included augmented consideration for the emerging priorities related to the Market Renewal project.

In my recent letter of February 13, 2017, I requested the IESO to be prepared in supporting the establishment of a new entity, the Ontario Climate Change Solutions Deployment Corporation of the Ministry of the Environment and Climate Change (MOECC). I expect the IESO will seek to prioritize its core business plan activities while ensuring this joint initiative with the MOECC is well supported to realize the shared objective of ensuring low-carbon energy choices.

I am satisfied that the IESO's proposed plan for the 2017 budget and related activities reflect the appropriate scope and resourcing to advance the Market Renewal, as well as meeting the responsibilities of its core mandate. I expect future market renewal resourcing beyond 2017 will be further reassessed in future business plans and revenue requirements applications with the Ontario Energy Board as required.

This letter constitutes my approval of the IESO's 2017 budget of the Plan in accordance with my authority under subsection 24(2) of the *Electricity Act, 1998*.

I look forward to working with the IESO in the opportunities that lie ahead.

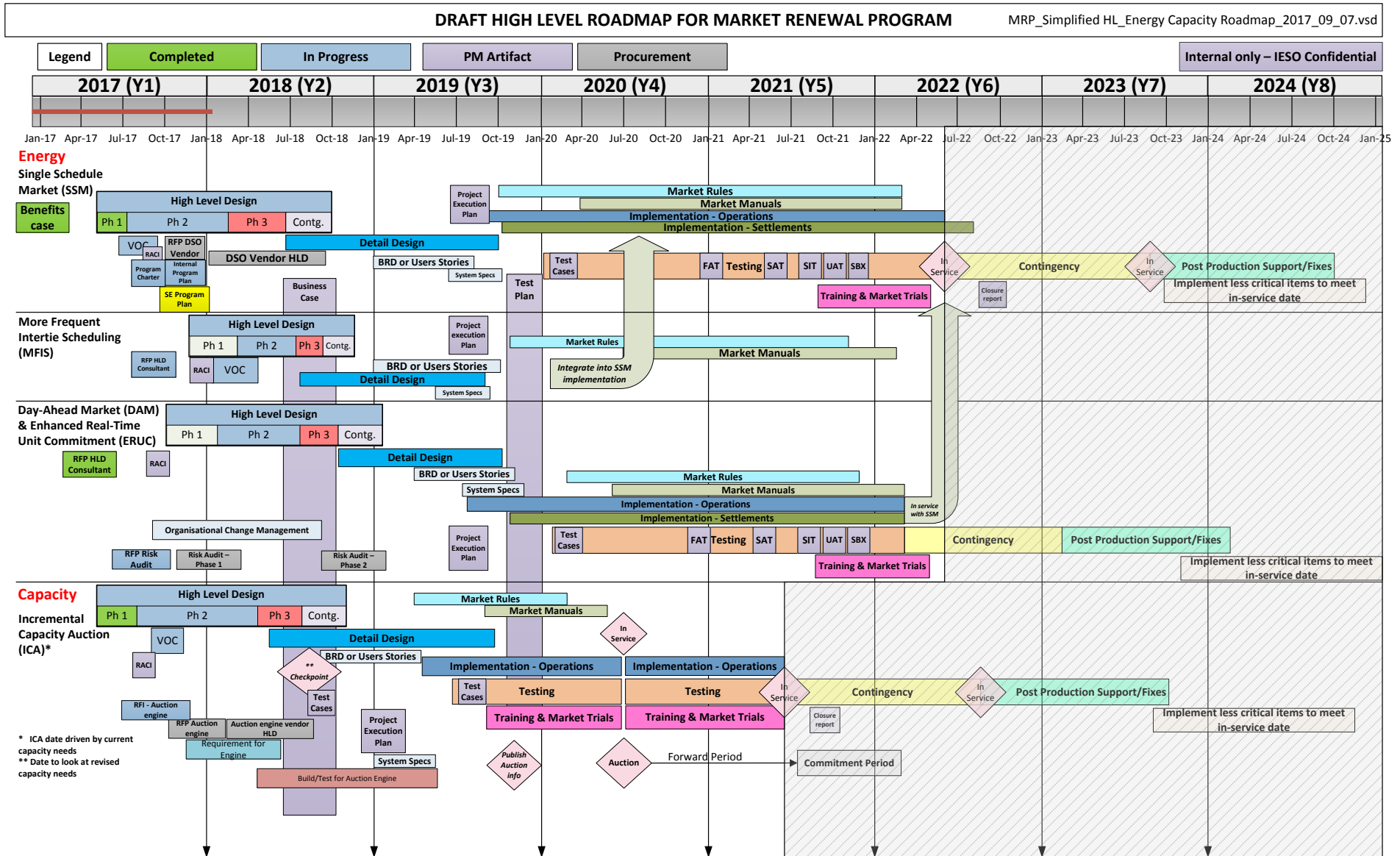
Sincerely,

Glenn Thibeault
Glenn Thibeault
Minister

c: Tim O'Neill, Chair, IESO
Serge Imbrogno, Deputy Minister of Energy
Michael Reid, Assistant Deputy Minister, Strategic, Network and Agency Policy
Division, Ministry of Energy

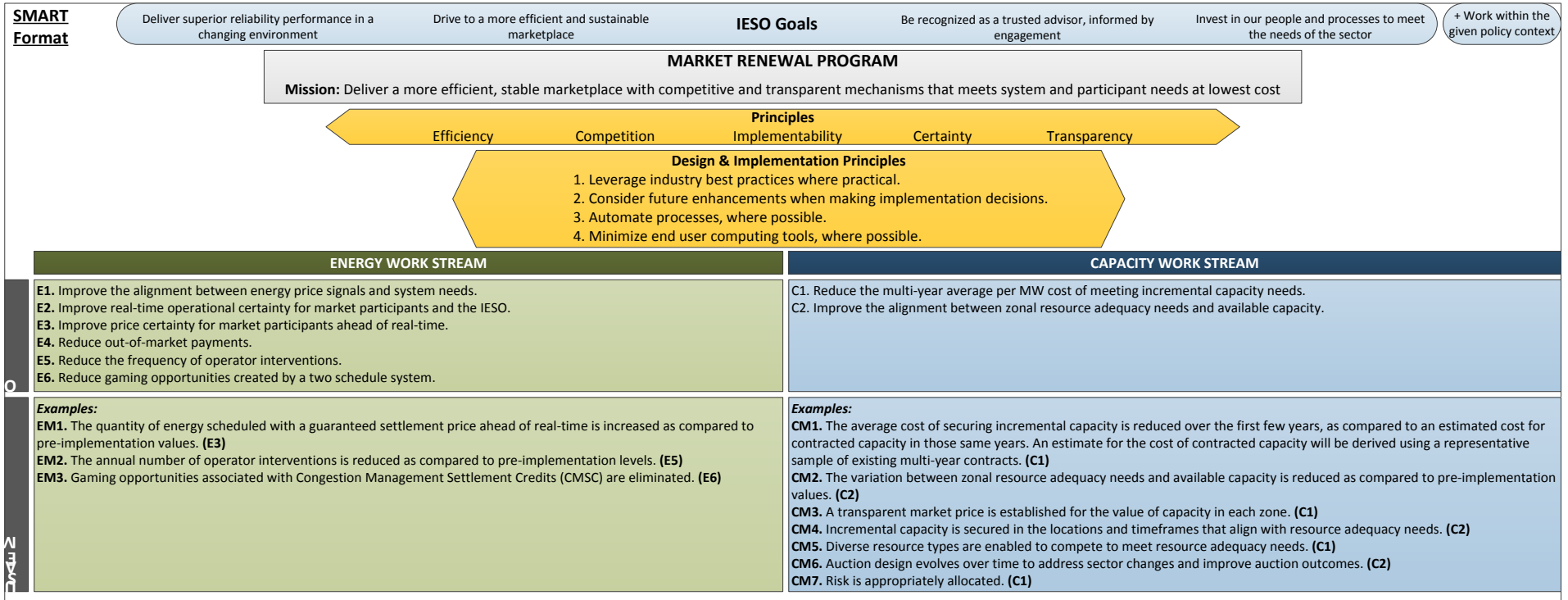
Appendix C Program Roadmap

As of September 7, 2017



Appendix D Business Objectives

As of 30 Dec 2017



RMP/C

Appendix E Program Organization Chart

Appendix F Market Renewal Working Group Membership

Name	Organization
	Powerconsumer
	Canada Wind Energy Association/Power Advisory LLC
	Resolute Forest Products
	Association of Major Power Consumers of Ontario
	NextEra Energy/NextEra Energy
	Association of Power Producers of Ontario
	Market Surveillance Panel
	United Way Bruce Grey
	Ivaco Rolling Mills
	Milton Hydro
	HQ Energy Marketing
	Opus One Solutions
	NRStor/Power Advisory LLC
	Brookfield Renewable Group
	Ontario Power Generation
	TransCanada Energy
	Peak Power Energy
	Alectra Solutions
	Bruce Power
	Canadian Manufacturers and Exporters
	Rayonier Advanced Materials
	EnerNOC
	Northland Power
	TransAlta

Note: Where more than one member is listed for a given position, the second person serves as an alternate.

Appendix G MRP Governance Chart

– End of Document –

TOR- 4

Issue: 2.0

Page 32 of 32

IESO Confidential



Market Renewal Executive Steering Committee (MRESC) Terms of Reference

Document Number:	TOR-5	Preparer:	
Issue:	2.0	Owner/Approver:	
Effective Date:	July 31, 2018	Steward:	

1. Introduction

1. The Market Renewal Executive Steering Committee (MRESC) shapes the strategic direction for IESO's Market Renewal Program (MRP) by providing input and recommendations to the Chair (– Market Renewal Program Sponsor) with respect to oversight of the overall program performance. The MRESC will also act in an advisory role to establish overall principles for: i) how the MRP will be initiated, planned, executed, monitored & controlled and closed; ii) the approval and release of program contingency (schedule, cost, and quality) at the overall program level; and iii) the identification of risk, risk monitoring, and risk mitigation measures. The MRESC will ensure alignment with IESO's company business strategic plan, multi-year and annual company business plans, as well as supporting compliance with regulatory requirements. The MRESC develops overall performance metrics for the MRP, and monitors progress towards applicable IESO Corporate Performance Metrics (CPMs) and the IESO Regulatory Scorecard. The MRESC also monitors and resolves issues with strategic alliances, and monitors and reviews overall strategies for the MRP.

2. Purpose

2. The MRESC has executive management responsibility for the relationship between the business and the MRP. The MRESC additionally acts as the highest escalation for all issues related to the MRP.

3. Sponsor for the MRESC

Name	Title	Business Unit	Phone Number	E-mail
	Vice-President & Chief Operating Officer	Planning, Acquisition & Operations		

4. Composition of the MRESC

3. The membership of the MRESC is:
 - VP Planning, Acquisition and Operations & COO (Chair)
 - Director, Market Renewal Operations (Facilitator)
 - MRP Project Officer (Scribe)
 - VP Corporate Services & CFO
 - VP Policy, Engagement and Innovation
 - VP Information and Technology Services & CIO
 - VP Human Resources
 - VP Legal Resources and Corporate Governance
 - Director, Market Assessment & Compliance Division (MACD)
 - President & CEO (Observer)
 - Director, Internal Audit (Observer)
 - Director, Markets and Procurement (Energy Design & External Stakeholder Management)
 - Director, Market Renewal, Capacity Integration

5. Organization and Administration of Meetings of the MRESC

4. The MRP Sponsor will Chair the MRESC. The Chair may act as the Facilitator for the meeting, or a separate independent Facilitator may be appointed by the Chair. The Chair or Facilitator will be responsible for the role of a time keeper.
5. Meetings are held monthly or more frequently on an as-needed basis.
6. The Facilitator will ensure all meeting support material is circulated in advance to MRESC members via email, and posted in the MRESC shared meeting folder. The Facilitator will prepare a draft agenda one week in advance of the meeting to allow members to contribute to the agenda. The final agenda and meeting materials will be provided no later than two days in advance so that members have the opportunity to prepare for the meeting.
7. The agenda will state the sponsor's and facilitator's name, the purpose and objectives for the meeting, with the agenda items to be discussed indicating whether the items are for information purposes or for input, as well as indicating any pre-meeting requirements (e.g., members attending are expected to have read a document prior to attending).
8. Attendance may be in person, via teleconferencing or webcast facilities. If attendance does not meet the minimum participation the Chair may reschedule or cancel the meeting. Minimum participation is considered to be the Chair (or their

delegate), at least three of the five business unit other Vice-Presidents (or their delegate(s)) and one MRP Director (or their delegate(s)).

9. The Facilitator, or a delegate (Scribe), will take meeting minutes including actionable items and their resolution. Meeting minutes, including any accompanying written submissions, will be distributed to all members within three business days following a meeting. MRESC members will review the minutes and provide any comments to the Facilitator within four business days of receipt of the draft. The Facilitator will finalize the minutes and will then distribute the minutes and related written submissions to the MRESC members and will post those materials on the MRESC shared meeting folder. This will be done within ten business days following the meeting.

6. Normal Order of Meeting

10. The Chair shall confirm who is present, including those participating remotely.
11. The Chair, or delegate, will review minutes from the previous meeting and deal with any outstanding action items.
12. The Chair shall note any new items that are on the agenda in the order that they appear on the agenda. MRESC members may request additional items to be added under new business on the agenda.
13. The Chair or facilitator will manage the meeting to ensure everyone has a voice at the meeting and no one dominates the discussions.
14. At the conclusion of the meeting, the Chair will close with a summary, recap the agreed to action items, and inform members of the next steps as well as next meeting date. Developing a draft agenda for next meeting is optional, depending on when the next meeting is.

7. Decision Making

15. All decisions are at the discretion of the MRP Sponsor, acting in compliance with the IESO's Organizational Authority Register (OAR), and reporting to the President and CEO and IESO Board of Directors. The MRP Sponsor will take into consideration input, recommendations and advice from the MRESC members when making any decisions. A program governance chart is included in Appendix A.
16. All decisions made during the meeting will be duly recorded in the minutes.

8. Confidentiality

17. Information that is deemed to be confidential will not be recorded in the minutes or other notes.

9. Document Control

Prepared By	Job Title, Role
	Director, Market Renewal Operations

Reviewed By	Job Title, Role
	VP, Human Resources
	VP, Corporate Services & CFO
	VP, Legal Resources and Corporate Governance
	VP, Information and Technology Services and CIO
	VP, Policy, Engagement and Innovation
	Director, Market Assessment & Compliance Division

Approved By	Role
	VP, Planning, Acquisition and Operations & COO

Document Change History

Issue	Reason for Issue	Date
1.0	Initial release	April 21, 2017
1.1	Draft for review following IESO executive re-organization	April 17, 2018
1.2	Update to reflect additions to MRESC membership	May 24, 2018
2.0	Updated to reflect further additions to membership and addition of governance chart	July 31, 2018

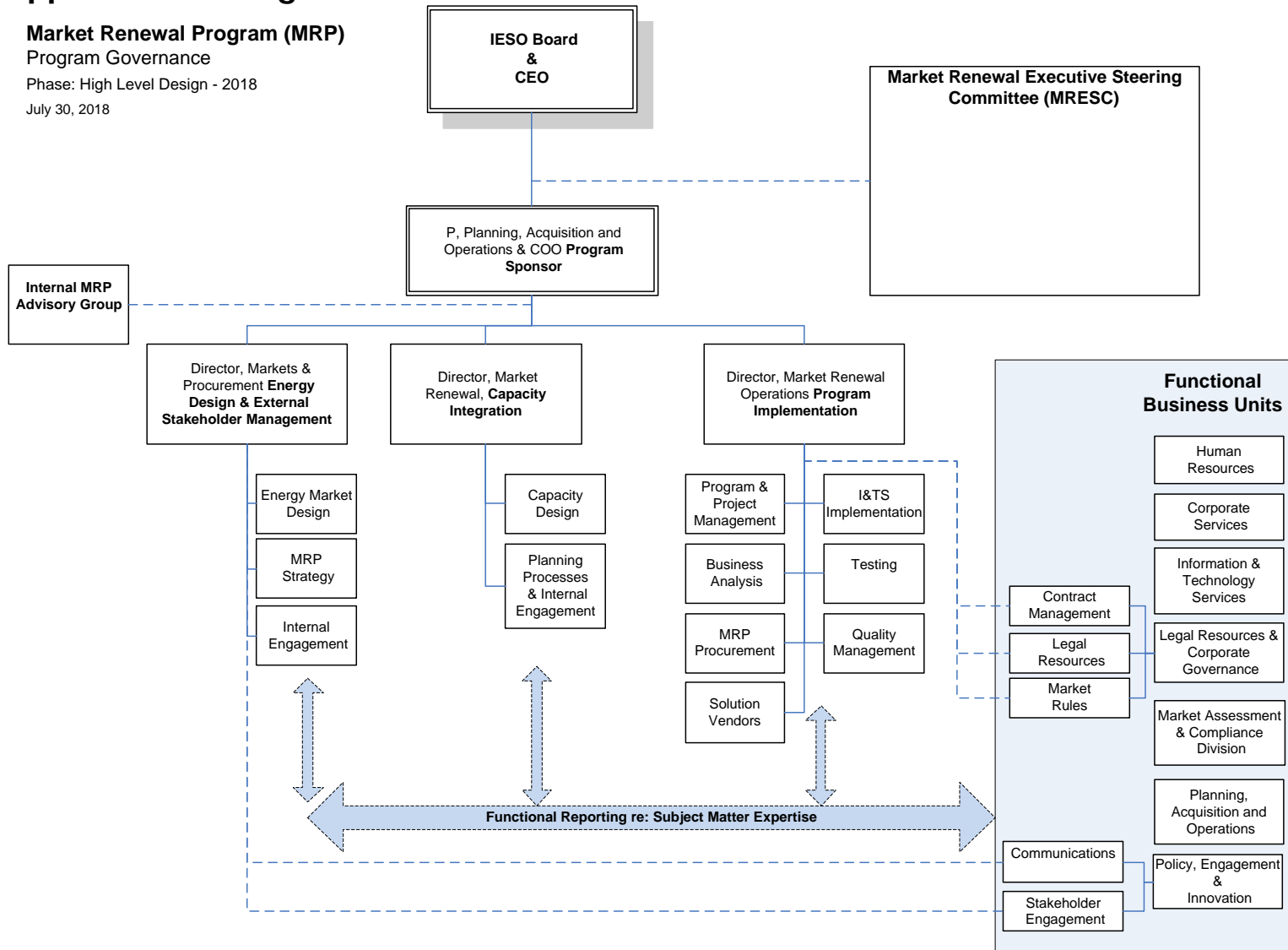
Appendix A – Program Governance Chart

Market Renewal Program (MRP)

Program Governance

Phase: High Level Design - 2018

July 30, 2018



Program: MRP-Market Renewal Program

Monthly Cost Report for MRESC
 April 13, 2018

Document Ref. No.: PRG_MCR03

**Period: Month Ending
 31-Mar-18**

<i>Program Cost Summary:</i>				
	2017 ⁽¹⁾		2018 ⁽¹⁾	
	Operating	Capital	Operating	Capital
<i>Business Plan Approved Costs</i>	9,247		12,700	4,140
<i>Contingency</i>	2,760			
Business Plan with Contingency	12,007		12,700	4,140
<i>Forecast</i>	7,972		18,100	550
<i>Contingency ⁽³⁾</i>				90
Forecast with Contingency	7,972		18,100	640
<i>Actual Costs ⁽²⁾</i>	7,902	201	2,779	560
<i>Contingency</i>				
Actual with Contingency	7,902	201	2,779	560

Notes:

(1) Report in Thousands (000's).

(2) Actual Costs for 2018 are YTD.

(3) No Contingency for Operating Forecasted costs.

Prepared by: MRP Cost Controller

MRP - Operating Financial Summary - 31-Mar-18

The Business Plan Approved Costs for MRP have been divided into the four projects: SSM, DAM, ERUC, and ICA, as well as a general account for tracking costs associated with Program related activities. Each project has been forecasted to reflect the cost expectations for 2018. The actual costs will be tracked against the 2018 forecast.

Variance Summary:

MRP ended the first quarter of 2018 with actual costs lower than the Q1 budgeted and forecasted costs. The lower spend reflects the delay in the onboarding of resources to ICA and to the program.

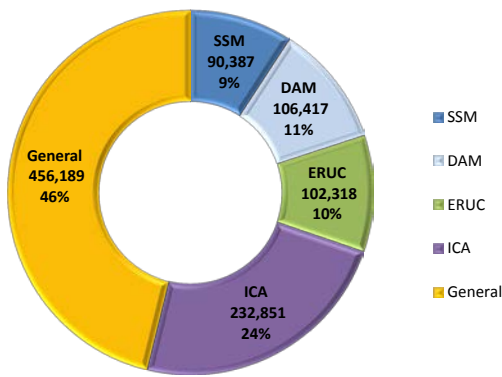
Areas for Improvements:

Internal Audit has concluded their review of MRP and Markets procurements and findings are being implemented on the program.

Overview of MRP Monthly Costs: 31-Mar-18

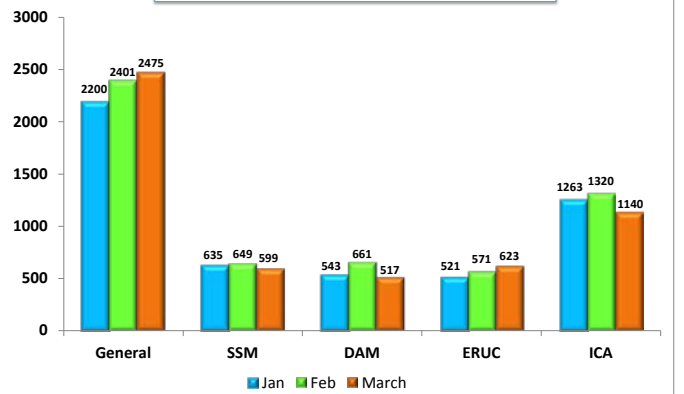
MRP Operating Costs								Year to Date					
Project Name	Budget	Forecast	Monthly			Status for 31-Mar-18	Comments	YTD Budget	YTD Forecast	YTD Actual	YTD Actual vs Forecast	Variance %	YTD Status
			Actual	Variance Actual vs Forecast	Variance %								
SSM	\$233,224	\$184,419	\$90,387	(\$94,032)	(51%)	Below Forecast	Labour and Consultants effort was forecasted higher in anticipation additional HLD SE meetings.	\$685,298	\$538,881	\$252,602	(\$286,279)	(53%)	Below Forecast
DAM	\$72,845	\$84,057	\$106,417	\$22,360	27%	Above Forecast	CRA Consultants spent more time on DAM than anticipated.	\$232,911	\$250,796	\$325,975	\$75,179	30%	Above Forecast
ERUC	\$72,845	\$76,075	\$102,318	\$26,243	34%	Above Forecast		\$232,911	\$242,600	\$257,610	\$15,010	6%	Above Forecast
ICA	\$300,647	\$302,419	\$232,851	(\$69,568)	(23%)	Below Forecast		\$887,565	\$773,882	\$863,174	\$89,292	12%	Above Forecast
General	\$392,847	\$401,060	\$456,189	\$55,129	14%	Above Forecast	Increased IESO labour costs resulting from the UMR relocation	\$1,164,167	\$1,018,666	\$1,079,488	\$60,822	6%	Below Forecast
Total Program	\$1,072,409	\$1,048,030	\$988,162	(\$59,868)	(6%)	Below Forecast		\$3,202,851	\$2,824,825	\$2,778,848	(\$45,977)	(2%)	Below Forecast

Actual Costs by Project



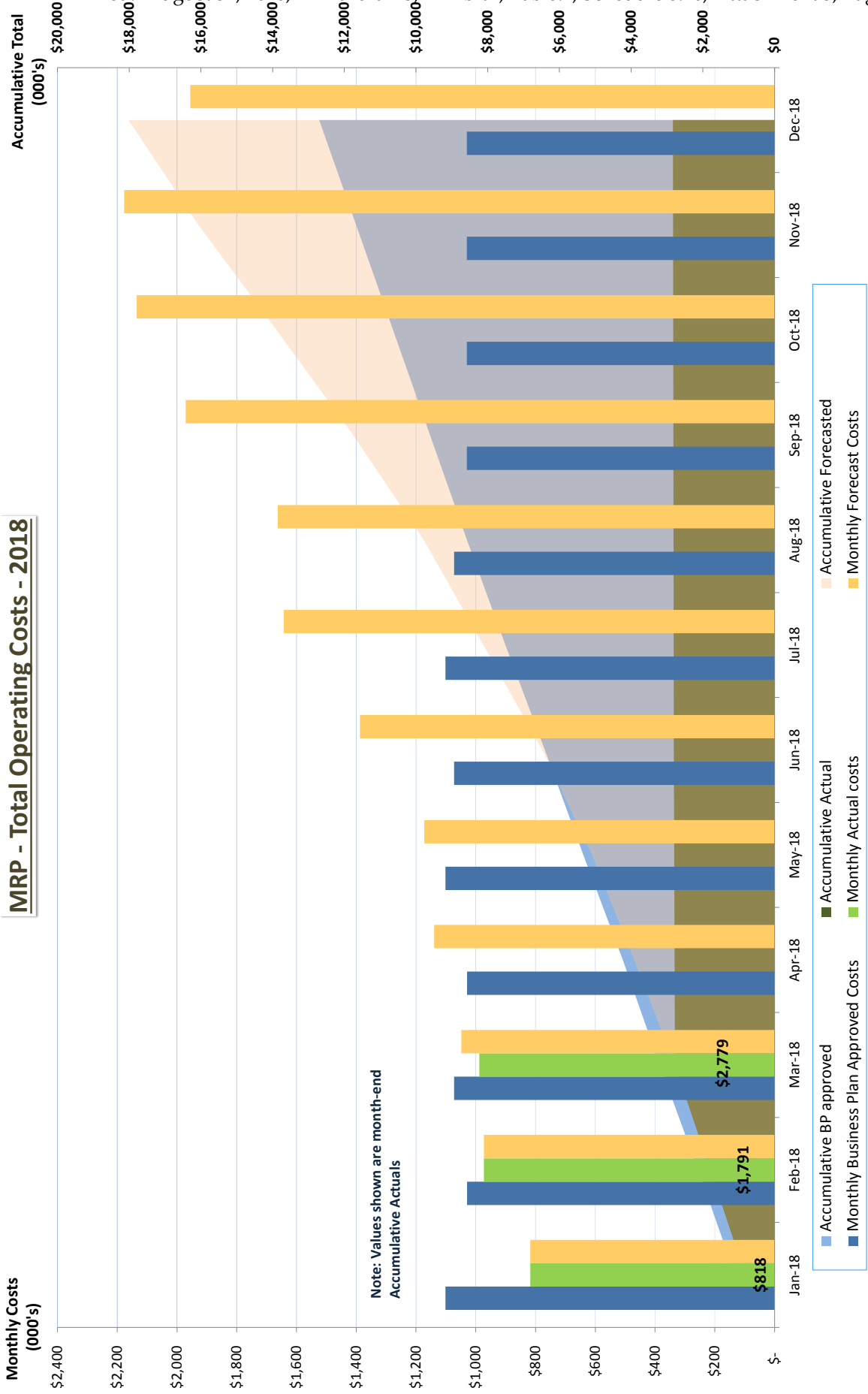
Notes:- The above graph reflects MRP actual cost allocation per projects and total percentage.

Total Monthly Hours Three Month Comparison of IESO Internal Labour Hours



Notes:- The monthly hours in the general account for MRP shows a slight increase in March reflecting the additional effort charged to the program by the facilities team as part of the UMR relocation. Overall Program hours went down 5% for March due to the March break holidays.

MRP - Total Operating Costs - 2018



Notes:- As illustrated above in June the forecasted costs will be higher than the approved budget costs, and will continue to increase as new resources are on-boarded.

MRP - Capital Financial Summary - 31-Mar-18

The Business Plan Approved Costs for MRP have been divided into the four projects: SSM, DAM, ERUC, and ICA, as well as a general account for tracking costs associated with Program related activities. Each project has been forecasted to reflect the cost expectations for 2018. The actual costs will be tracked against the 2018 forecast.

The capital costs approved under the 2018 Approved Business Plan is to capture the costs of detailed design work projected for 2018 as well as the costs for relocating the MRP team to our UMR location.

Variance Summary:

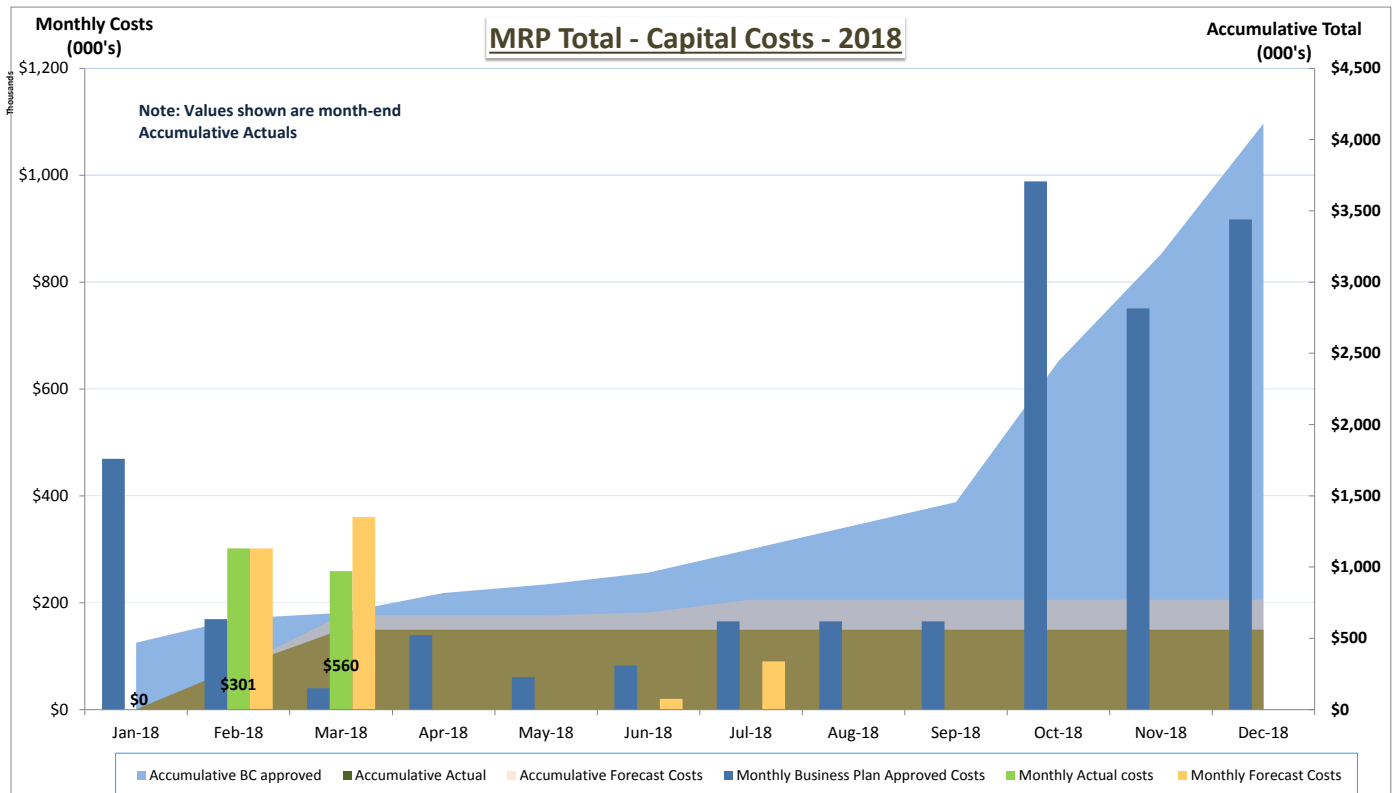
Capital Spend YTD reflects delay in delivery of AV Equipment for the meeting rooms at UMR.

Areas for Improvements:

The capital budget spend planned for Q4 2018 is now expected to be delayed to Q1 2019, as High Level Designs approval are now being projected for the end of Q4, not in Q3 as originally projected. The \$770,000 projected for the UMR relocation costs will now be the only MRP capital spend for 2018.

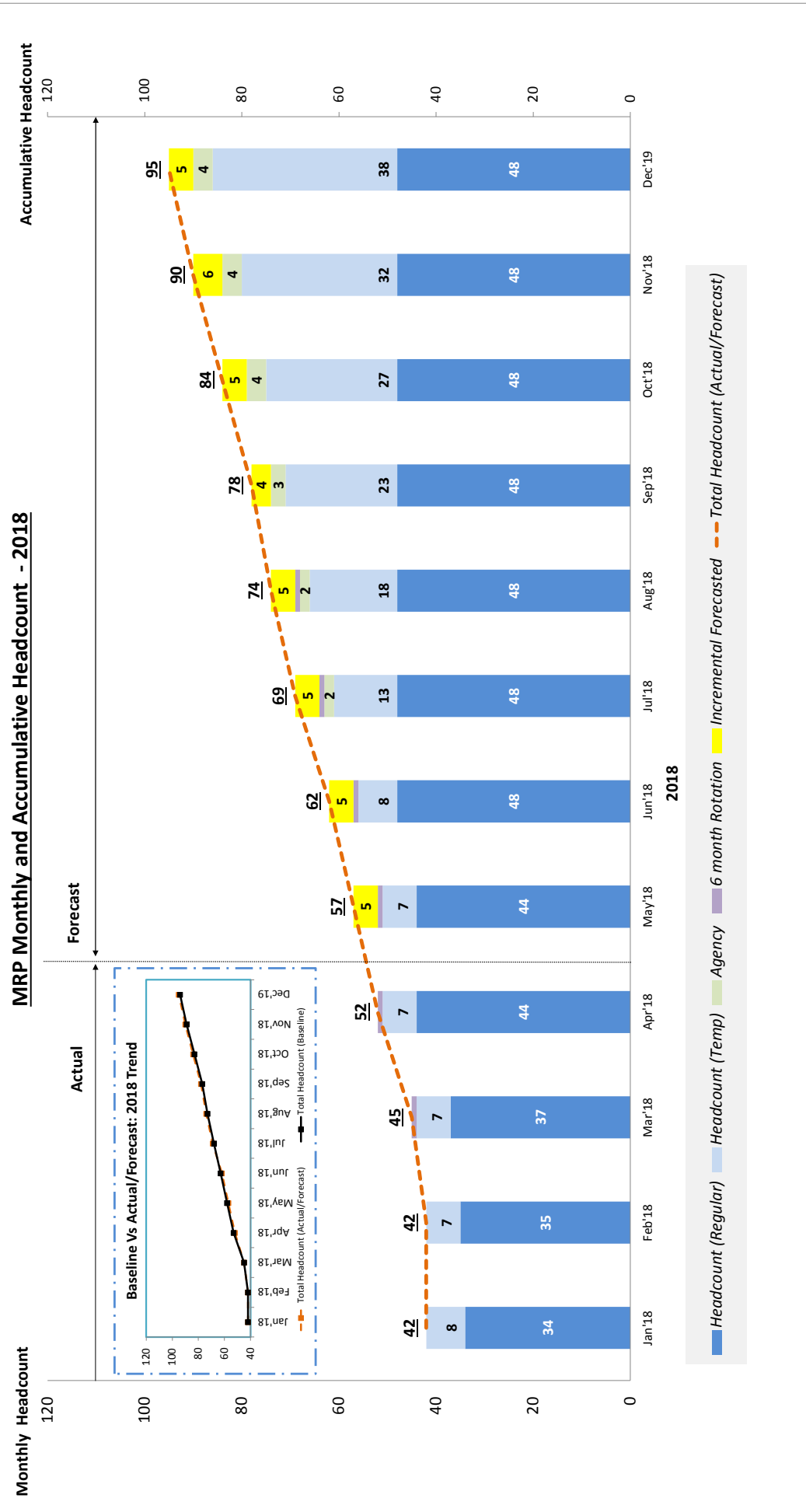
Overview of MRP Monthly Costs: 31-Mar-18

MRP Capital Costs								Year to Date					
Monthly								Year to Date					
Project Name	Budget	Forecast	Actual	Variance Actual vs Forecast	Variance %	Status for 31-Mar-18	Comments	YTD Budget	YTD Forecast	YTD Actual	YTD Actual vs Forecast	Variance %	YTD Status
General - UMR	\$39,850	\$360,000	\$258,848	(\$101,152)	(28%)	Below Forecast	Capital Spend YTD reflects delay in delivery of AV Equipment for the meeting rooms at UMR.	\$678,260	\$661,410	\$560,145	(\$101,265)	(15%)	Below Forecast
Total Program	\$39,850	\$360,000	\$258,848	(\$101,152)	(28%)	Below Forecast		\$678,260	\$661,410	\$560,145	(\$101,265)	(15%)	Below Forecast



Notes:- The graph reflects the initial expectations stated in the approved business plan with capital budget of \$4.1m and with detailed designs beginning in Q4 2018. Capital spend forecast has been revised to reflect the lag in detail design. UMR Relocation is the only capital spend forecasted for 2018 with 70% of the UMR forecast spent in Q1.

MRP Monthly and Accumulative Headcount - 2018



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Program: MRP-Market Renewal Program

Project: Total MRP Program

Monthly Schedule Report for MRESC
March 31, 2018

Document Ref. No.: MRP_MSR01_18-03-30
(MSR ~ 02)

Project Commencement Reporting Date: Jan 1, 2018
Project Completion Reporting Date: Dec 31, 2018

Reporting Range Period	From <i>January 1, 2018</i>	<<<<<	>>>>>	To <i>March 31, 2018</i>
------------------------	--------------------------------	-------	-------	-----------------------------

For Week ending	<i>March 31, 2018</i>
-----------------	-----------------------

Reporting Date	<i>April 7, 2018</i>
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Project Schedule Status

Schedule Baseline	Cumulative Planned %	Cumulative Actual %	Variation %	Schedule Variance ⁽¹⁾
	15.0%	13.9%	(-1.1%)	Under Threshold

Month End Project Performance Status

Schedule Performance	Planned Value (PV)	Earned Value (EV)	Schedule Performance Index (SPI) ⁽²⁾	Schedule Status ⁽²⁾
	\$2,718,102	\$2,519,097	0.93	Behind Schedule

Cost Performance	Actual Cost (AC)	Earned Value (EV)	Cost Performance Index (CPI) ⁽³⁾	Budget Status ⁽³⁾
	\$2,778,849	\$2,519,097	0.91	Over Budget

SAMPLE - FOR MRESC REVIEW

Legend for Status:

- (1). Threshold upper limit: assumption is -10%. If variation exceed (-10%) threshold limit schedule to be revised
 - (2). Schedule: PMI defined as "Behind Schedule" SPI<1, if SPI>1 "Ahead of Schedule" or if SPI=1 "On Schedule"
 - (3). Budget: PMI defined as "Under Budget" If CPI >1, if CPI <1 "Over Budget" or if CPI=1 "On Budget"
- Note: SPI & CPI will be calculated on Monthly Basis, above CPI value based on YTD actuals.



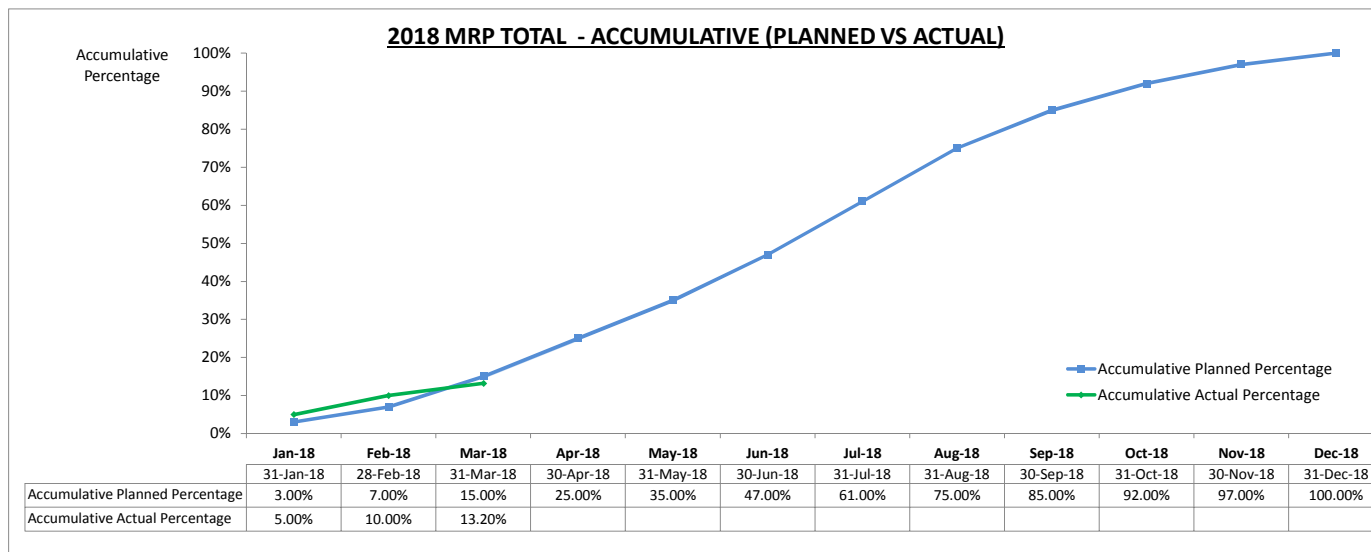
MARKET RENEWAL PROGRAM

Project Progress and Performance Indicators

Monthly Status as of: 31-Mar-18

PROGRESS INDICATORS								
MRP	2018 Total Forecast at Completion (BAC) ⁽¹⁾	2018 Total Accumulated Actual Cost (AC)	Budget Equivalent weightage %	Planned Scheduled (start)	Planned Scheduled (finish)	Monthly scheduled Planned%	Monthly Schedule Actual Progress	(Weighted) Schedule % Completed
ICA	\$6,079,638	\$863,174	33.6%	01-Jan-18	31-Dec-18	15.0%	13.0%	4.4%
SSM	\$3,143,020	\$252,602	17.3%	01-Jan-18	31-Dec-18	15.0%	15.0%	2.6%
ERUC	\$1,156,763	\$257,610	6.4%	01-Jan-18	31-Dec-18	15.0%	15.0%	1.0%
DAM	\$1,285,642	\$325,975	7.1%	01-Jan-18	31-Dec-18	15.0%	14.0%	1.0%
GENERAL	\$6,455,618	\$1,079,488	35.6%	01-Jan-18	31-Dec-18	15.0%	14.0%	5.0%
MRP Total	\$18,120,681	\$2,778,849	100%				15.0%	13.9%

PERFORMANCE INDICATORS			
Earned Value (EV) <small>(BAC X Monthly Scheduled Actual Progress)</small>	Planned Value (PV) <small>(BAC X Monthly Scheduled Planned %)</small>	CPI <small>(EV/AC)</small>	SPI <small>(EV/PV)</small>
\$790,353	\$911,946	0.92	0.87
\$471,453	\$471,453	1.87	1.00
\$173,514	\$173,514	0.67	1.00
\$179,990	\$192,846	0.55	0.93
\$903,787	\$968,343	0.84	0.93
\$2,519,097	\$2,718,102	0.91	0.93

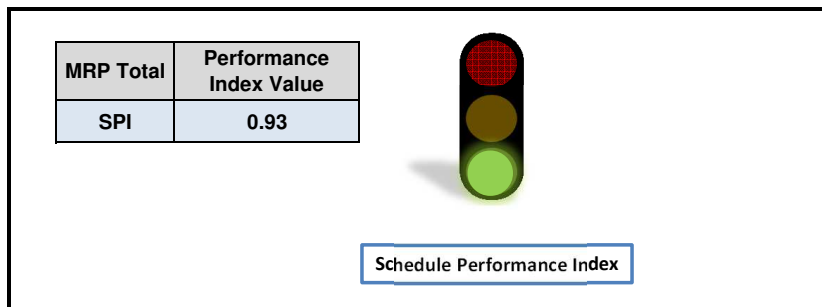


Notes (1) 2018 Forecast values and not Budget values will be used.
Overall Schedule Variance for MRP Total is -2.57%

MARKET RENEWAL PROGRAM

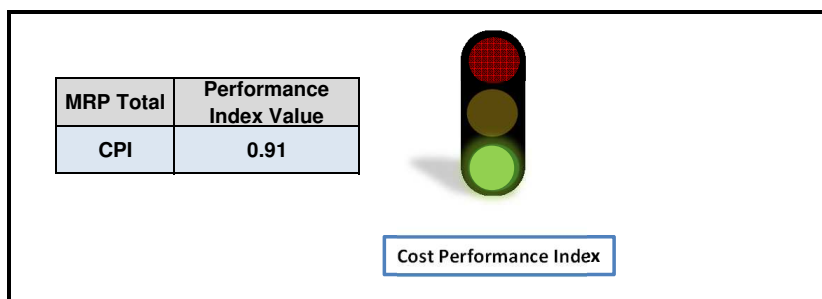
Project Progress and Performance Indicators

Monthly Performance Status: 31-Mar-18

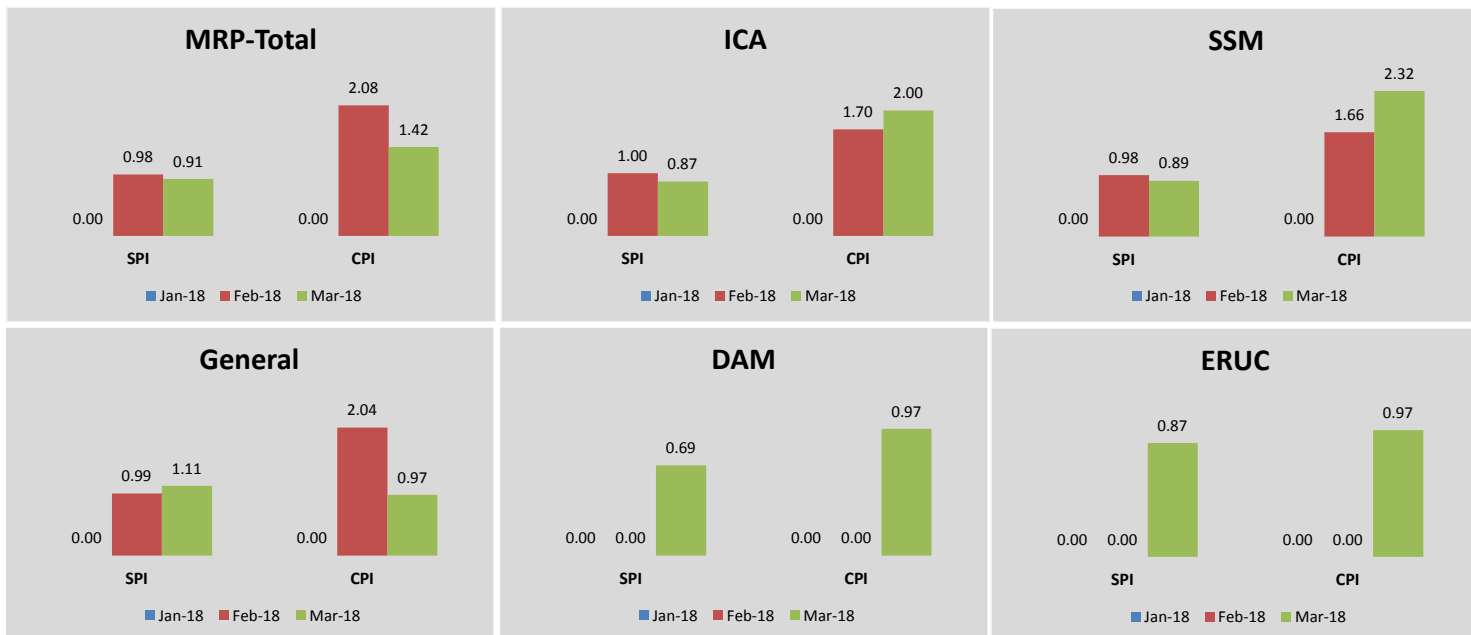


Threshold limits

Index	Red	Amber	Green
SPI	<0.70	0.70 to 0.90	above 0.9
CPI	<0.80	0.80 to 0.90	above 0.9



Three Month Rolling Performance Comparison 31-Mar-18



Note: The above graph is for illustrative purpose only, actual progress calculated for ICA & SSM starting from Feb end and for ERUC and DAM will be calculated from April End

PMI Definitions:

CPI (Cost Performance Index)

The cost performance index (CPI) is a ratio that measures the financial effectiveness of a project by dividing the budgeted cost of work performed (BCWP or EV) by the actual cost of work performed (ACWP or AC). If the result is more than 1, then the project is under budget

SPI (Schedule Performance Index)

Schedule performance index (SPI) is a ratio of the earned value (EV) to the planned value (PV). $SPI = EV \div PV$. If the SPI is less than one, it indicates that the project is potentially behind schedule to-date whereas an SPI greater than one, indicates the project is running ahead of schedule

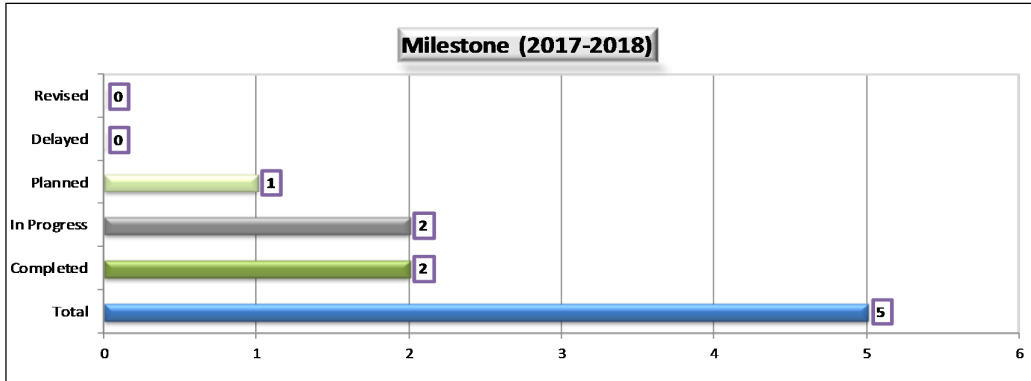


ICA-Executive Overview

ICA-Project Milestone Status

31-Mar-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	18-May-17	20-Jul-17	18-May-17	20-Jul-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	16-Aug-17	17-Apr-18	16-Aug-17		In Progress	
3	RFP for Auction Engine	1-Feb-18	3-Jul-18			In Progress	
4	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
5	Stakeholder Engagement- Design Decision	2-Aug-18	17-Sep-18			Planned	



ICA-Design Elements Progress

31-Mar-18

Design Elements	Completion Stages	Stages Completed	STAGES														
			Internal						External								
			1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Design Decision	6. Draft Contents	7. Review 1	8. Review 2	9. Review 3	10. Review 4	11. Review 5 (Approval)				
DE 1: Participation Requirement	11	3	Completed	Completed	Completed												
DE 2: Resource Eligibility	11	3	Completed	Completed	Completed												
DE 3: Qualified Capacity	11	3	Completed	Completed	Completed												
DE 4: Market Power Mitigation	11	3	Completed	Completed	Completed												
DE 5: Length of forward Period	11	3	Completed	Completed	Completed												
DE 6: Commitment Period	11	3	Completed	Completed	Completed												
DE 7: Multi year Commitment	11	3	Completed	Completed	Completed												
DE 8: Locational Considerations	11	3	Completed	Completed	Completed												
DE 8: Locational Considerations-Part 2	11	1	Completed	Planned													
DE 9: Slope of Demand Curve	11	3	Completed	Completed	Completed												
DE 9: Demand Curve Analysis	11	0	In Progress	Planned													
DE 10: Target Capacity	11	3	Completed	Completed	Completed												
DE 11: Min/Max Capacity Limits	11	3	Completed	Completed	Completed												
DE 12: Net Cost of New Entry	11	3	Completed	Completed	Completed												
DE 13: Max auction Clearing Price	11	3	Completed	Completed	Completed												
DE 14: Rebalancing Auctions	11	2	Completed	Completed													
DE 15: Resource Obligations (within forward period)	11	2	Completed	Completed													
DE 16: Non-performance Implications (within forward period)	11	2	Completed	Completed													
DE 17: Resource performance Obligation	11	3	Completed	Completed	Completed												
DE 18: Performance Assessment	11	3	Completed	Completed	Completed												
DE 19: Cost Recovery	11	3	Completed	Completed	Completed												

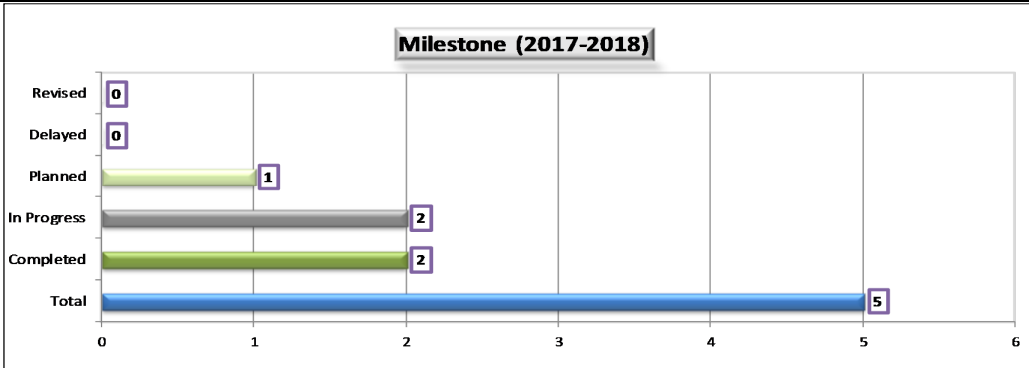
SSM-Executive Overview



SSM-Project Milestone Status

31-Mar-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	4-May-17	29-Jun-17	4-May-17	29-Jun-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	27-Jul-17	29-Mar-18	27-Jul-17	29-Mar-18	Completed	
3	RFP for DSO Vendor	20-Feb-18	17-Jul-18			In Progress	
4	Release RFP for DSO Vendor	25-Jun-18	25-Jun-18			Planned	
5	Stakeholder Engagement- Design Decision	29-Mar-18	24-May-18			Planned	
6	High Level Design Document	21-Sep-18	21-Sep-18			Planned	
7	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
8	Detail Design	17-Jul-18	1-Oct-19			Planned	
9	Project execution plan approval		3-Dec-18			Planned	



SSM-Design Elements Progress

31-Mar-18

Design Elements	Completion Stages	Stages Completed	STAGES											
									Internal			External		
			1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Design Decision	6. Draft Contents	7. Review 1	8. Review 2	9. Review 3	10. Review 4	11. Review 5 (Approval)	
DE 1: Energy Ref Price	11	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress					
DE 2: Energy Congestion Price	11	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress					
DE 4: Energy Ref Price loss Component	11	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress					
DE 5: Supplier Pricing	11	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress					
DE 6: Operating Reserve Reference Price	11	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress					
DE 7: Reserve Congestion Price	11	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress					
DE 9: Multi-interval optimization (MIO) pricing run and ramp rate Multiplier	11	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress					
DE 10: Pre or Post interval pricing	11	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress					
DE 3: Intertie Congestion Price	11	4	Completed	Completed	Completed	Completed	Completed							
DE 8: Resolving Constraint Violations	11	4	Completed	Completed	Completed	Completed	Completed							
DE 11: Pricing setting Eligibility for Resources	11	4	Completed	Completed	Completed	Completed	Completed							
DE 12: Out of Market Operator Actions	11	4	Completed	Completed	Completed	Completed	Completed							
DE 16: Pricing for Loads	11	4	Completed	Completed	Completed	Completed	Completed							
DE 17: Financial Transmission Rights	11	4	Completed	Completed	Completed	Completed	Completed							
DE 18: Make Whole Payment for Congestion	11	4	Completed	Completed	Completed	Completed	Completed							
DE 19: Uplift Recovery	11	2	Completed	Completed										
DE 13: Mitigation Process	11	2	Completed	Completed										
DE 14: Timing of Application	11	2	Completed	Completed										
DE 15: Reference Levels	11	3	Completed	Completed	Completed									

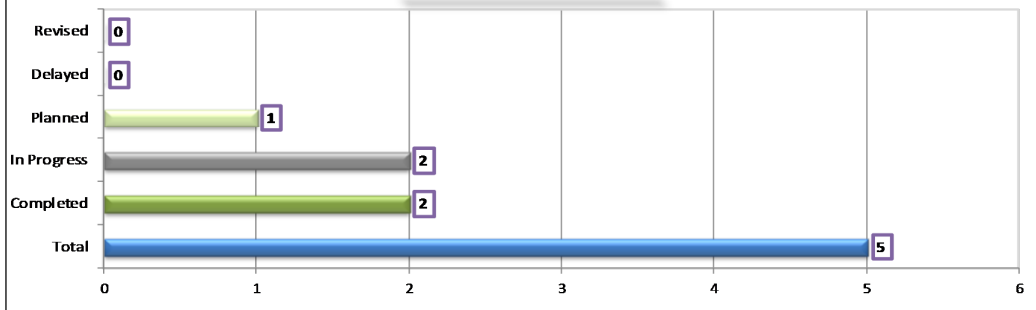


DAM-Executive Overview

DAM-Project Milestone Status 31-Mar-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	18-May-17	20-Jul-17	18-May-17	20-Jul-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	16-Aug-17	17-Apr-18	16-Aug-17		In Progress	
3	RFP for Auction Engine	1-Feb-18	3-Jul-18			In Progress	
4	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
5	Stakeholder Engagement- Design Decision	2-Aug-18	17-Sep-18			Planned	

Milestone (2017-2018)



Note: Milestone & Design Elements shown are for illustrative Purpose only

DAM-Design Elements Progress 31-Mar-18

Design Elements	Completion Stages	Stages Completed	STAGES														
			Internal						External								
			1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Design Decision	6. Draft Contents	7. Review 1	8. Review 2	9. Review 3	10. Review 4	11. Review 5 (Approval)				
DE 1: Participation Requirement	11	3	Completed	Completed	Completed												
DE 2: Resource Eligibility	11	3	Completed	Completed	Completed												
DE 3: Qualified Capacity	11	3	Completed	Completed	Completed												
DE 4: Market Power Mitigation	11	3	Completed	Completed	Completed												
DE 5: Length of forward Period	11	3	Completed	Completed	Completed												
DE 6: Commitment Period	11	3	Completed	Completed	Completed												
DE 7: Multi year Commitment	11	3	Completed	Completed	Completed												
DE 8: Locational Considerations	11	3	Completed	Completed	Completed												
DE 8: Locational Considerations-Part 2	11	1	Completed	Planned													
DE 9: Slope of Demand Curve	11	3	Completed	Completed	Completed												
DE 9: Demand Curve Analysis	11	0	In Progress	Planned													
DE 10: Target Capacity	11	3	Completed	Completed	Completed												
DE 11: Min/Max Capacity Limits	11	3	Completed	Completed	Completed												
DE 12: Net Cost of New Entry	11	3	Completed	Completed	Completed												
DE 13: Max auction Clearing Price	11	3	Completed	Completed	Completed												
DE 14: Rebalancing Auctions	11	2	Completed	Completed													
DE 15: Resource Obligations (within forward period)	11	2	Completed	Completed													
DE 16: Non-performance Implications (within forward period)	11	2	Completed	Completed													
DE 17: Resource performance Obligation	11	3	Completed	Completed	Completed												
DE 18: Performance Assessment	11	3	Completed	Completed	Completed												
DE 19: Cost Recovery	11	3	Completed	Completed	Completed												

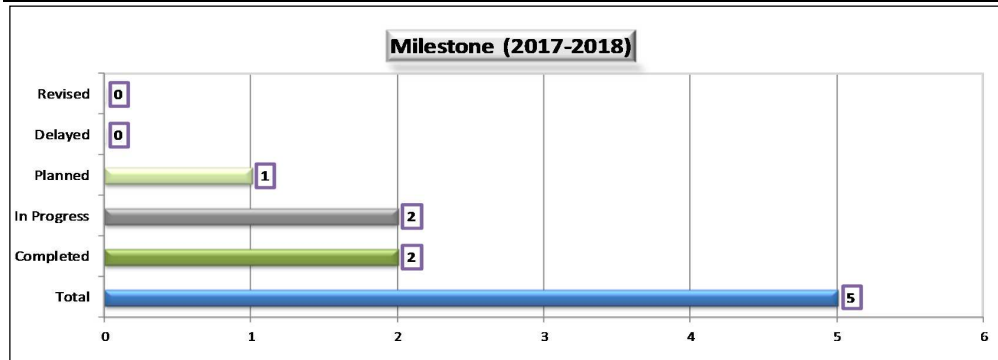
ERUC-Executive Overview



ERUC-Project Milestone Status

31-Mar-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	18-May-17	20-Jul-17	18-May-17	20-Jul-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	16-Aug-17	17-Apr-18	16-Aug-17		In Progress	
3	RFP for Auction Engine	1-Feb-18	3-Jul-18			In Progress	
4	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
5	Stakeholder Engagement- Design Decision	2-Aug-18	17-Sep-18			Planned	



Note: Milestone & Design Elements shown are for illustrative Purpose only

ERUC-Design Elements Progress

31-Mar-18

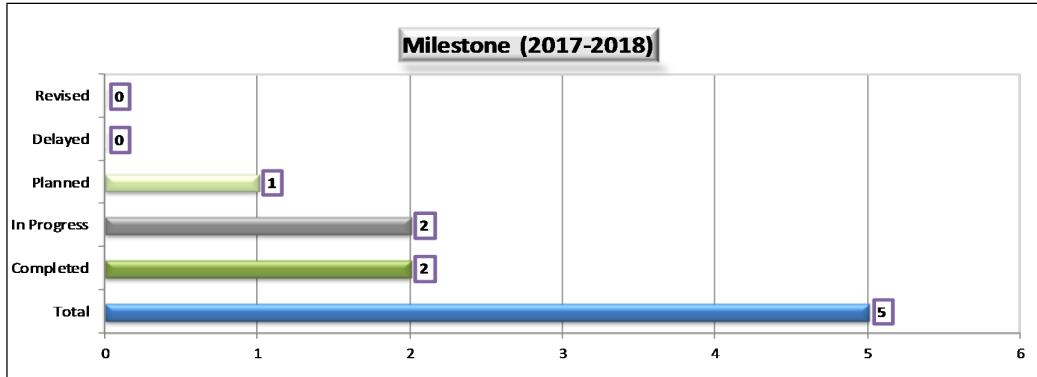
Design Elements	Completion Stages	Stages Completed	STAGES											
			1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Design Decision	6. Draft Contents	Internal			External		
									7. Review 1	8. Review 2	9. Review 3	10. Review 4	11. Review 5 (Approval)	
1. Functional Passes	11	3	Completed	Completed	Completed									
2. Look Ahead Schedule	11	3	Completed	Completed	Completed									
3. Timing and Frequency of Run	11	3	Completed	Completed	Completed									
4. Time Step	11	3	Completed	Completed	Completed									
5. Intertie Transactions	11	3	Completed	Completed	Completed									
6. Must Offer Requirements	11	3	Completed	Completed	Completed									
7. Eligibility Requirement	11	3	Completed	Completed	Completed									
8. Market Participation Data	11	3	Completed	Completed	Completed									
9. Commitment Cost and Non-Price Bids/Offers	11	1	Completed	Planned										
10. Bid/Offer Changes	11	3	Completed	Completed	Completed									
11. Binding Start-up Instruction and Operational Schedule	11	0	In Progress	Planned										
12. Calculation of Make Whole Payment	11	3	Completed	Completed	Completed									
13. Failure Charge	11	3	Completed	Completed	Completed									



General-Executive Overview

General-Project Milestone Status 31-Mar-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	18-May-17	20-Jul-17	18-May-17	20-Jul-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	16-Aug-17	17-Apr-18	16-Aug-17		In Progress	
3	RFP for Auction Engine	1-Feb-18	3-Jul-18			In Progress	
4	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
5	Stakeholder Engagement- Design Decision	2-Aug-18	17-Sep-18			Planned	



Note: Milestone & Design Elements shown are for illustrative Purpose only

ICA-Design Elements Progress 31-Mar-18

Design Elements	Completion Stages	Stages Completed	STAGES											
			Internal						External					
			1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Design Decision	6. Draft Contents	7. Review 1	8. Review 2	9. Review 3	10. Review 4	11. Review 5 (Approval)	
DE 1: Participation Requirement	11	3	Completed	Completed	Completed									
DE 2: Resource Eligibility	11	3	Completed	Completed	Completed									
DE 3: Qualified Capacity	11	3	Completed	Completed	Completed									
DE 4: Market Power Mitigation	11	3	Completed	Completed	Completed									
DE 5: Length of forward Period	11	3	Completed	Completed	Completed									
DE 6: Commitment Period	11	3	Completed	Completed	Completed									
DE 7: Multi year Commitment	11	3	Completed	Completed	Completed									
DE 8: Locational Considerations	11	3	Completed	Completed	Completed									
DE 8: Locational Considerations-Part 2	11	1	Completed	Planned										
DE 9: Slope of Demand Curve	11	3	Completed	Completed	Completed									
DE 9: Demand Curve Analysis	11	0	In Progress	Planned										
DE 10: Target Capacity	11	3	Completed	Completed	Completed									
DE 11: Min/Max Capacity Limits	11	3	Completed	Completed	Completed									
DE 12: Net Cost of New Entry	11	3	Completed	Completed	Completed									
DE 13: Max auction Clearing Price	11	3	Completed	Completed	Completed									
DE 14: Rebalancing Auctions	11	2	Completed	Completed										
DE 15: Resource Obligations (within forward period)	11	2	Completed	Completed										
DE 16: Non-performance Implications (within forward period)	11	2	Completed	Completed										
DE 17: Resource performance Obligation	11	3	Completed	Completed	Completed									
DE 18: Performance Assessment	11	3	Completed	Completed	Completed									
DE 19: Cost Recovery	11	3	Completed	Completed	Completed									

Program: MRP-Market Renewal Program

Monthly Cost Report for MRESC
May 23, 2018

Document Ref. No.: PRG_MCR04

**Period: Month Ending
30-Apr-18**

Program Cost Summary:				
	2017 ⁽¹⁾		2018 ⁽¹⁾	
	Operating	Capital	Operating	Capital
<i>Business Plan Approved Costs</i>	9,247		12,700	4,000
<i>Contingency</i>	2,760			
Business Plan with Contingency	12,007		12,700	4,000
<i>Forecast</i>	7,972			
<i>2018 Forecast Baseline (end Q1-2018)</i>			17,700	550
<i>2018 Forecast Rolling</i>			17,350	580
<i>Contingency ⁽³⁾</i>				90
Forecast with Contingency	7,972		17,350	670
<i>Variance (2018 Rolling vs Baseline Forecast)</i>			-350	120
<i>Actual Costs ⁽²⁾</i>	7,902	201	3,727	560
<i>Contingency</i>				
Actual with Contingency	7,902	201	3,727	560

Notes:

(1) Report in thousands (000's).

(2) Actual costs for 2018 are YTD.

(3) No contingency for operating forecasted costs.

Prepared by: MRP Cost Controller

MRP - Operating Financial Summary - 30-Apr-18

The Business Plan Approved Costs for MRP have been divided into the four projects: SSM, DAM, ERUC, and ICA, as well as a general account for tracking costs associated with Program related activities. Each project has been forecasted to reflect the cost expectations for 2018. The actual costs will be tracked against the 2018 rolling forecast.

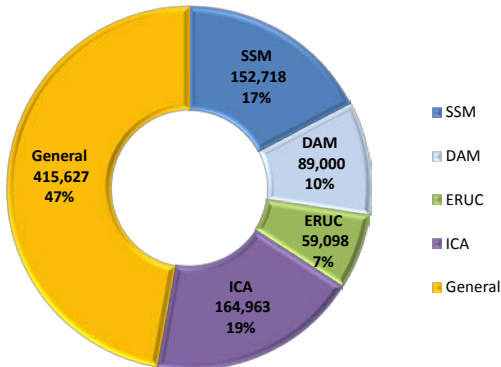
Variance Summary:

MRP spend for April was 9% below the monthly forecast and 2% below the YTD rolling forecast.

Overview of MRP Monthly Costs: 30-Apr-18

MRP Operating Costs								Year to Date						
Project Name	Business Plan Approved Costs	2018 Forecast Rolling	Monthly				Status for 30-Apr-18	Comments	YTD Business Plan Approved Costs	YTD 2018 Forecast Rolling	YTD Actual	YTD Actual vs Forecast	Variance %	YTD Status
			Actual	Variance Actual vs Forecast	Variance %									
SSM	\$218,849	\$202,204	\$152,718	(\$49,486)	(24%)	Below Forecast	Legal Service needs to be reallocated from the general account	\$904,147	\$455,455	\$405,969	(\$49,486)	(11%)	Below Forecast	
DAM	\$72,845	\$108,500	\$89,000	(\$19,500)	(18%)	Below Forecast		\$305,756	\$427,600	\$408,100	(\$19,500)	(5%)	Below Forecast	
ERUC	\$72,845	\$91,050	\$59,098	(\$31,952)	(35%)	Below Forecast		\$305,756	\$348,660	\$316,708	(\$31,952)	(9%)	Below Forecast	
ICA	\$286,272	\$225,000	\$164,963	(\$60,037)	(27%)	Below Forecast		\$1,173,836	\$1,092,024	\$1,031,986	(\$60,037)	(5%)	Below Forecast	
General	\$378,472	\$346,633	\$415,627	\$68,993	20%	Above Forecast	Legal Service charged to general account and needs to be reallocated	\$1,542,640	\$1,495,482	\$1,564,475	\$68,993	5%	Above Forecast	
Total Program	\$1,029,284	\$973,387	\$881,406	(\$91,981)	(9%)	Below Forecast		\$4,232,135	\$3,819,220	\$3,727,239	(\$91,981)	(2%)	Below Forecast	

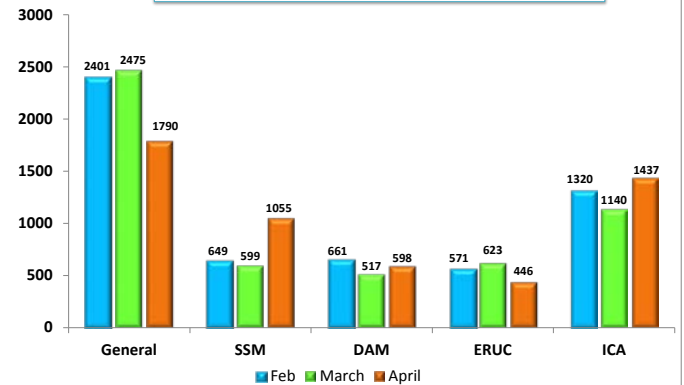
Monthly Actual Costs by Project



Notes:-

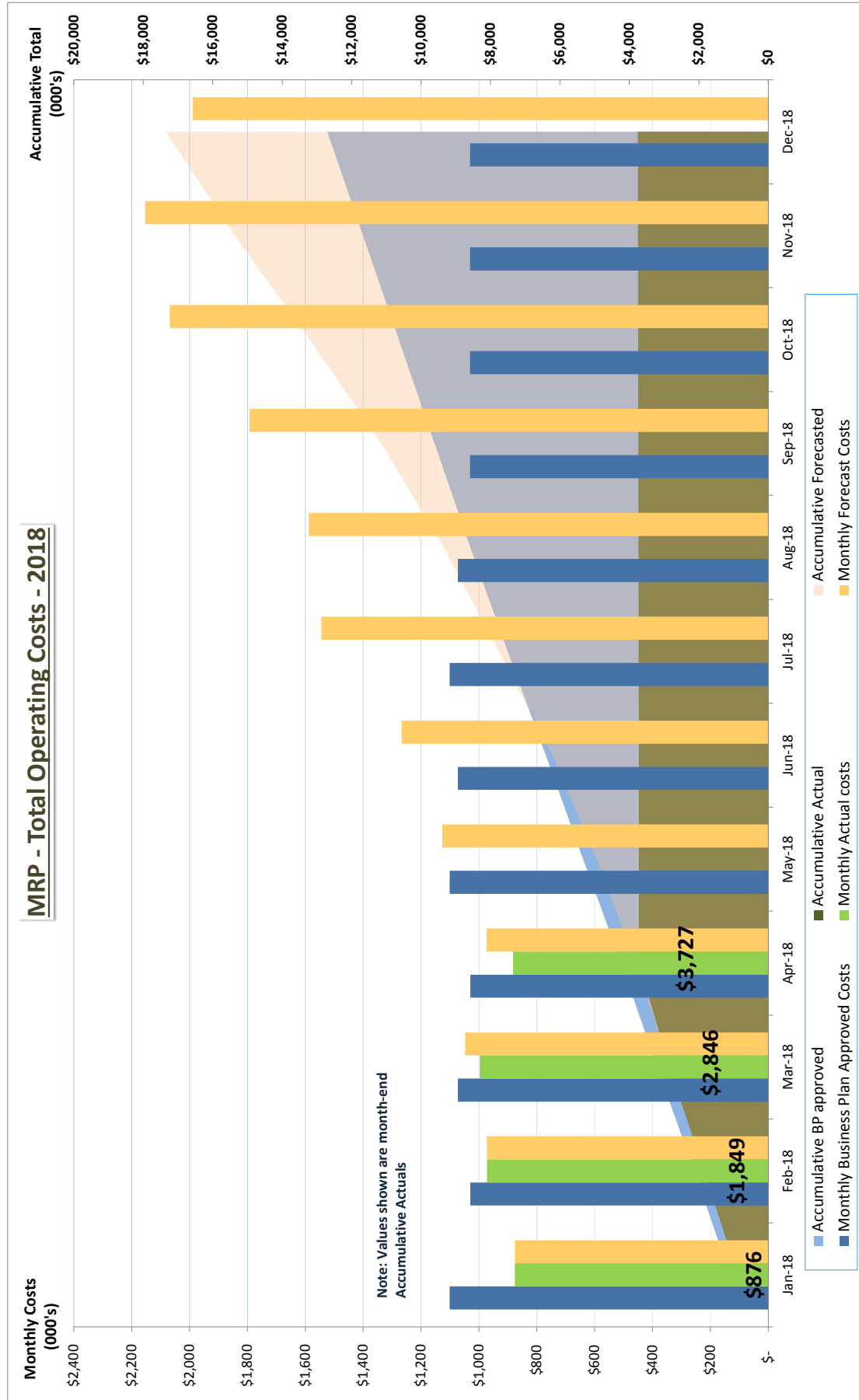
The above graph reflects MRP actual cost allocation per projects and percentage.

Three Month Comparison of IESO Internal Labour Hours



Notes:-

The MRP general account monthly hours for April shows a reduction, mainly due to incorrect booking of Energy project resources for the previous months. January to March incorrect hours will be reversed and be reflected in next months report. ICA shows the start of the additional planners joining the team.



Notes:- As illustrated above in June the forecasted costs will be higher than the approved budget costs, and will continue to increase as new resources are on-boarded.

MRP - Capital Financial Summary - 30-Apr-18

The capital costs approved under the 2018 Approved Business Plan is to capture the costs of detailed design work projected for 2018 as well as the costs for relocating the MRP team to our UMR location.

Variance Summary:

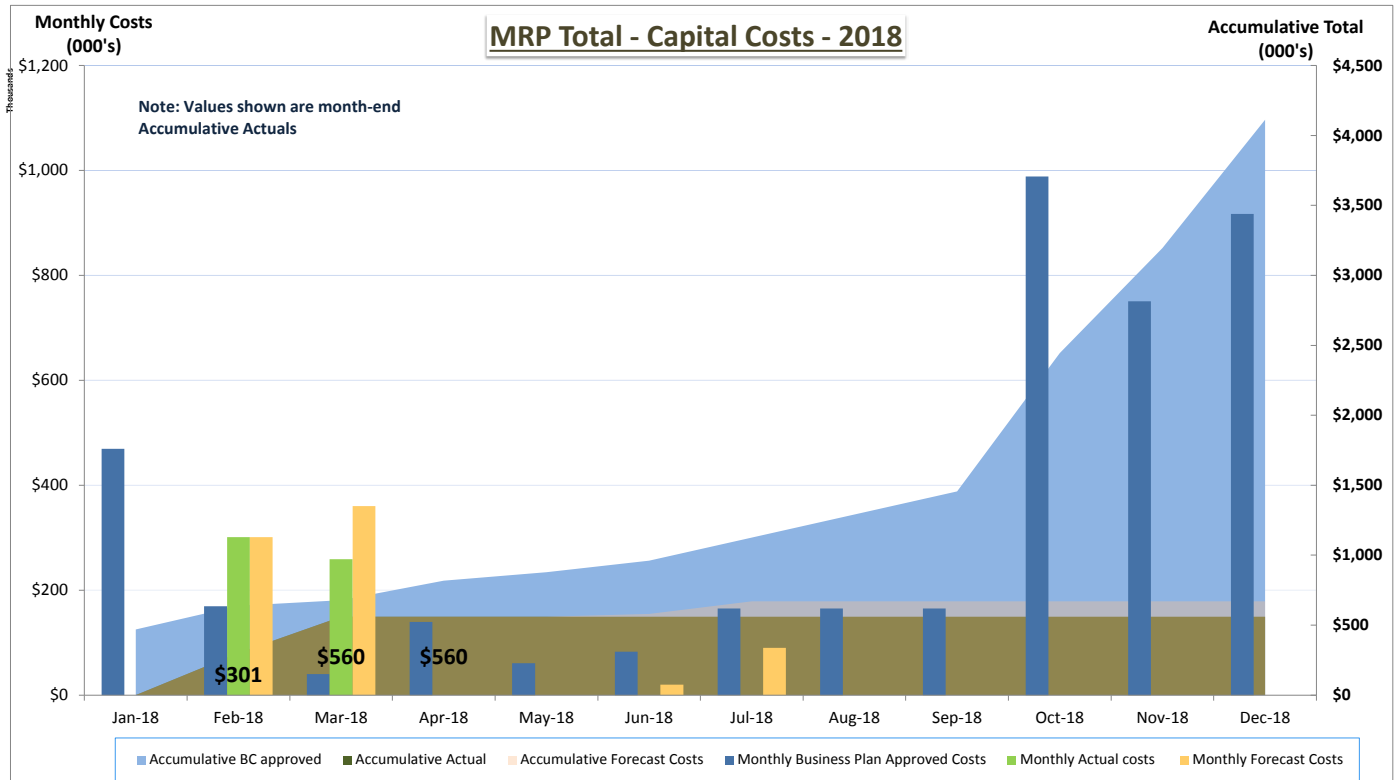
Capital Spend YTD reflects delay in delivery of AV Equipment for the meeting rooms at UMR.

Areas for Improvements:

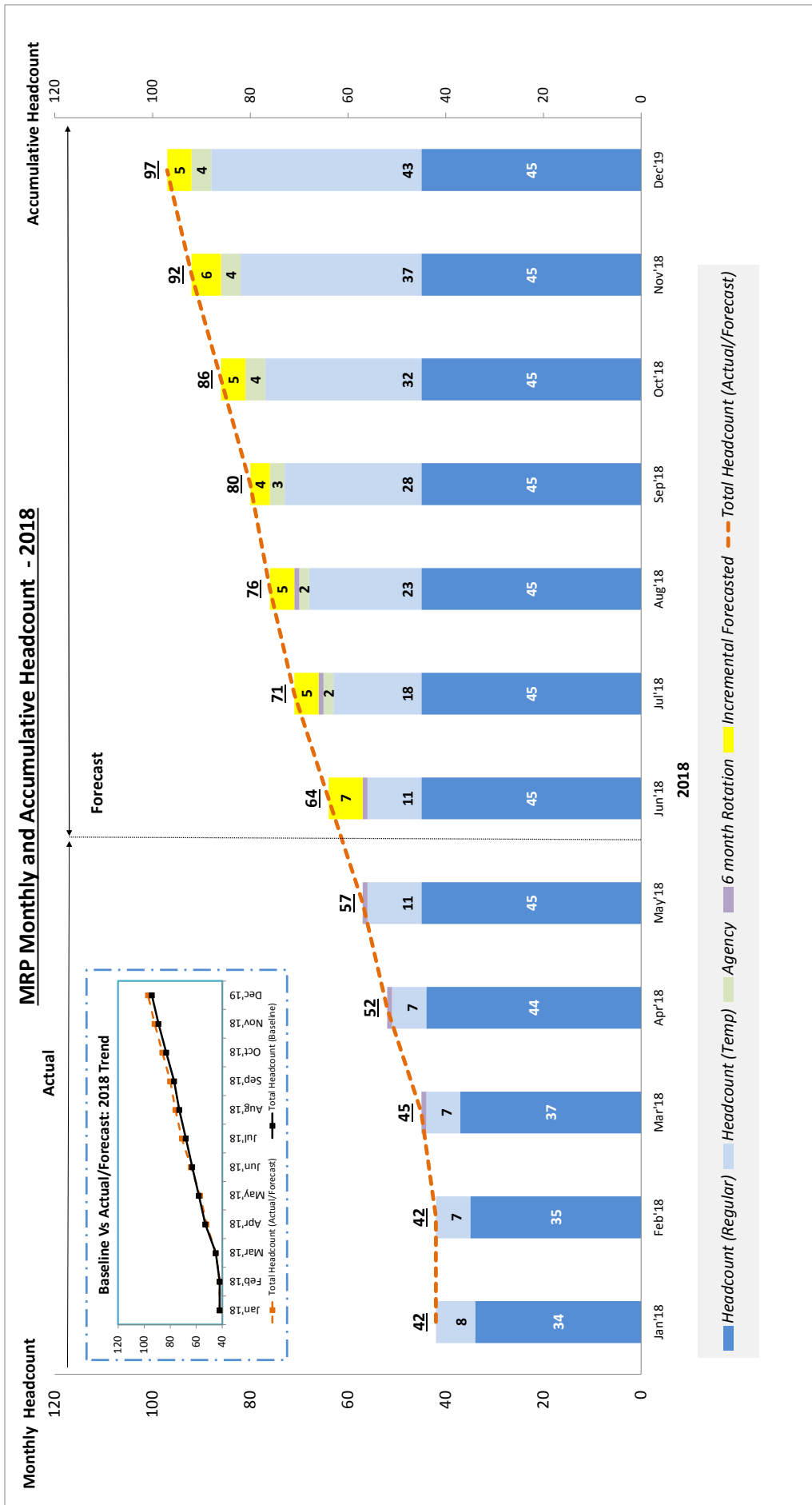
The capital budget spend planned for Q4 2018 is now expected to be delayed to Q1 2019, as High Level Designs approval are now being projected for the end of Q4, not in Q3 as originally projected. The \$770,000 projected for the UMR relocation costs will now be the only MRP capital spend for 2018.

Overview of MRP Monthly Costs: 30-Apr-18

MRP Capital Costs								Year to Date					
Monthly								Year to Date					
Project Name	Business Plan Approved Costs	2018 Forecast Rolling	Actual	Variance Actual vs Forecast	Variance %	Status for 30-Apr-18	Comments	YTD Business Plan Approved Costs	YTD 2018 Forecast Rolling	YTD Actual	YTD Actual vs Forecast	Variance %	YTD Status
General - UMR	\$139,500	\$0	\$0	\$0		Below Forecast	Capital Spend YTD reflects delay in delivery of AV Equipment for the meeting rooms at UMR.	\$768,260	\$560,145	\$560,145	\$0	0%	Below Forecast
Total Program	\$139,500	\$0	\$0	\$0		Below Forecast		\$768,260	\$560,145	\$560,145	\$0	0%	Below Forecast



Notes:- The graph reflects the initial expectations stated in the approved business plan with capital budget of \$4M and with detailed designs beginning in Q4 2018. Capital spend forecast has been revised to reflect the lag in detail design. UMR Relocation is the only capital spend forecasted for 2018 with 70% of the UMR forecast spent in Q1.



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Program: MRP-Market Renewal Program

Project: Total MRP Program

Monthly Schedule Report for MRESC
April 30, 2018

Document Ref. No.: MRP_MSR02_18-04-30
(MSR ~ 02)

Project Commencement Reporting Date: Jan 1, 2018
Project Completion Reporting Date: Dec 31, 2018

Reporting Range Period	From <i>January 1, 2018</i>	<<<<<< >>>>>>	To <i>April 30, 2018</i>
------------------------	--------------------------------	------------------------------------	-----------------------------

For Week ending	<i>April 30, 2018</i>
-----------------	-----------------------

Reporting Date	<i>May 7, 2018</i>
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Program Schedule Status

Schedule Baseline	Cumulative Planned %	Cumulative Actual %	Variation %	Schedule Variance ⁽¹⁾
	27.1%	24.7%	(-2.4%)	Under Threshold

Month End Project Performance Status

Schedule Performance	Planned Value (PV)	Earned Value (EV)	Schedule Performance Index (SPI) ⁽²⁾	Schedule Status ⁽²⁾
	\$4,702,058	\$4,283,238	0.91	Behind Schedule

Cost Performance	Actual Cost (AC)	Earned Value (EV)	Cost Performance Index (CPI) ⁽³⁾	Budget Status ⁽³⁾
	\$3,727,238	\$4,283,238	1.15	Under Budget

Legend for Status:

(1). Threshold upper limit: assumption is -10%, If variation exceed (-10%) threshold limit schedule to be revised
 (2). Schedule: PMI defined as "Behind Schedule" SPI<1, if SPI>1 "Ahead of Schedule" or if SPI=1 "On Schedule"
 (3). Budget: PMI defined as "Under Budget" If CPI >1, if CPI <1 "Over Budget" or if CPI=1 "On Budget"
 Note: SPI & CPI will be calculated on Monthly Basis, above CPI value based on YTD actuals.



MARKET RENEWAL PROGRAM

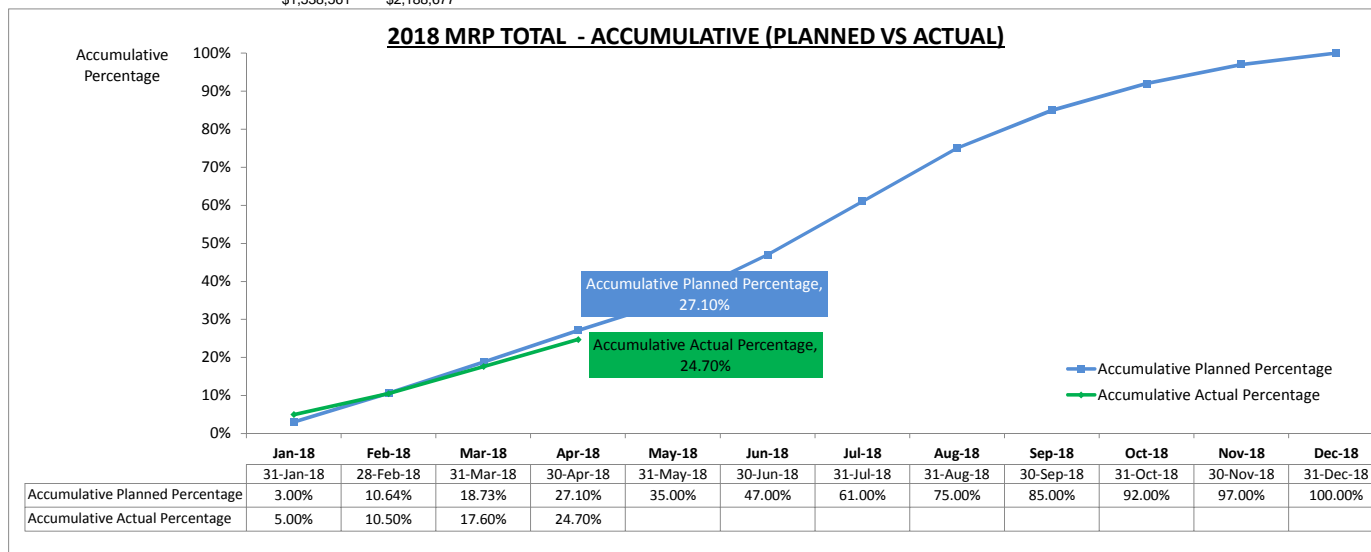
Project Progress and Performance Indicators

Monthly Status as of: 30-Apr-18

PROGRESS INDICATORS								
MRP	2018 Total Forecast at Completion (BAC) ⁽¹⁾	2018 Total Accumulated Actual Cost (AC)	Budget Equivalent weightage %	Planned Scheduled (start)	Planned Scheduled (finish)	Monthly scheduled Planned%	Monthly Schedule Actual Progress	(Weighted) Schedule % Completed
SSM	\$3,059,640	\$405,969	17.6%	01-Jan-18	31-Dec-18	30.80%	28.50%	5.0%
DAM	\$1,278,767	\$408,100	7.4%	01-Jan-18	31-Dec-18	21.11%	21.11%	1.6%
ERUC	\$1,183,763	\$316,708	6.8%	01-Jan-18	31-Dec-18	23.92%	23.92%	1.6%
ICA	\$5,807,458	\$1,031,986	33.5%	01-Jan-18	31-Dec-18	29.30%	23.30%	7.8%
GENERAL	\$6,019,998	\$1,564,475	34.7%	01-Jan-18	31-Dec-18	25.00%	25.00%	8.7%
MRP Total	\$17,349,626	\$3,727,238	100%					
						27.1%		24.7%

PERFORMANCE INDICATORS			
Earned Value (EV) <small>(BAC X Monthly Scheduled Actual Progress)</small>	Planned Value (PV) <small>(BAC X Monthly Scheduled Planned %)</small>	CPI (EV/AC)	SPI (EV/PV)
\$871,997	\$942,369	2.15	0.93
\$269,948	\$269,948	0.66	1.00
\$283,156	\$283,156	0.89	1.00
\$1,353,138	\$1,701,585	1.31	0.80
\$1,505,000	\$1,505,000	0.96	1.00
\$4,283,238	\$4,702,058	1.15	0.91

\$1,538,561 \$2,188,677



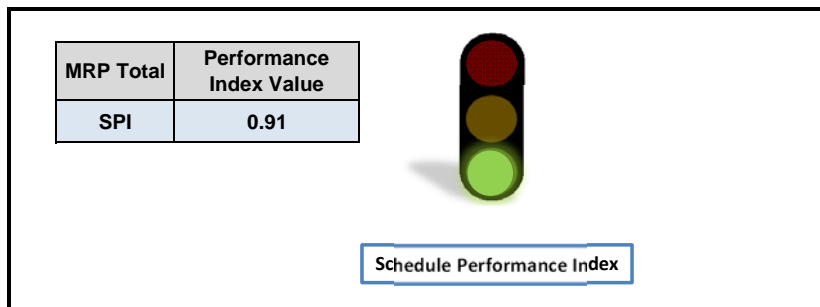
Notes (1) 2018 Forecast values and not Budget values will be used.
 (2) Overall Schedule Variance for MRP Total is -2.4%



MARKET RENEWAL PROGRAM

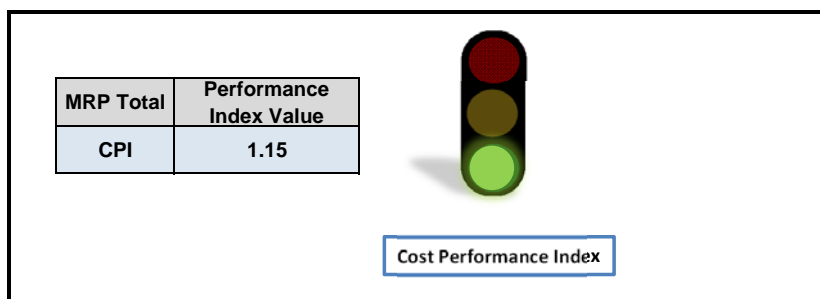
Program Progress and Performance Indicators

Monthly Performance Status: **30-Apr-18**

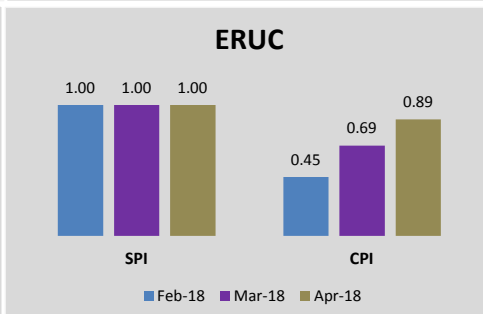
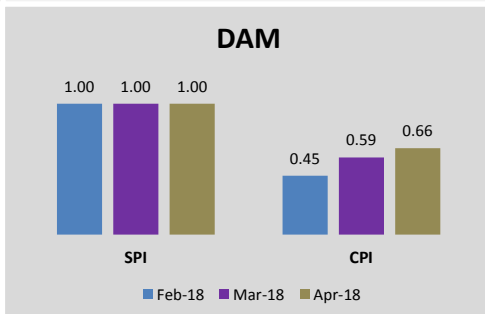
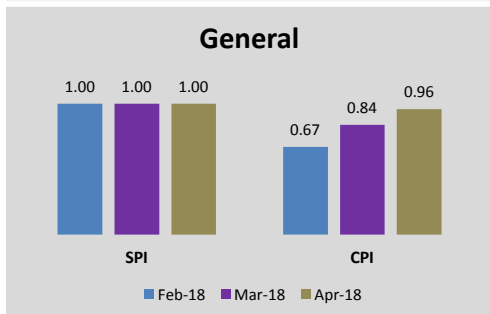
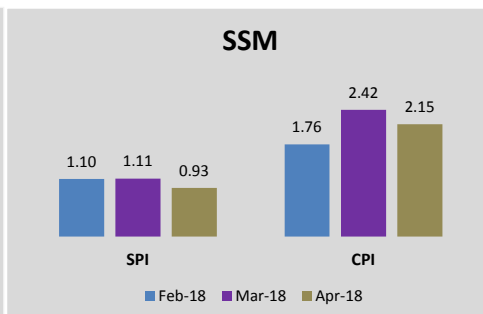
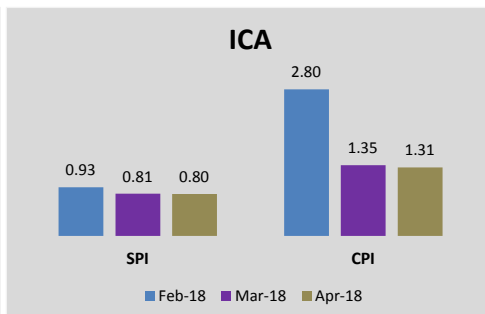
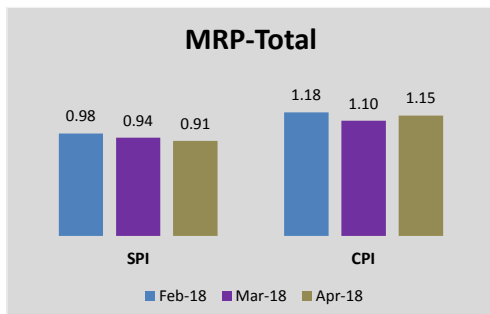


Threshold limits

Index	Red	Amber	Green
SPI	<0.70	0.70 to 0.90	above 0.9
CPI	<0.80	0.80 to 0.90	above 0.9



Three Month Rolling Performance Comparison **30-Apr-18**



Note: The above graphs are based on actual progress calculated for ICA & SSM starting end of Feb. For ERUC and DAM, SPI and CPI are calculated from month end April, with an assumption of 1.0 index for the two previous months.

PMI Definitions:

CPI (Cost Performance Index)

The cost performance index (CPI) is a ratio that measures the financial effectiveness of a project by dividing the budgeted cost of work performed (BCWP or EV) by the actual cost of work performed (ACWP or AC). If the result is more than 1, then the project is under budget

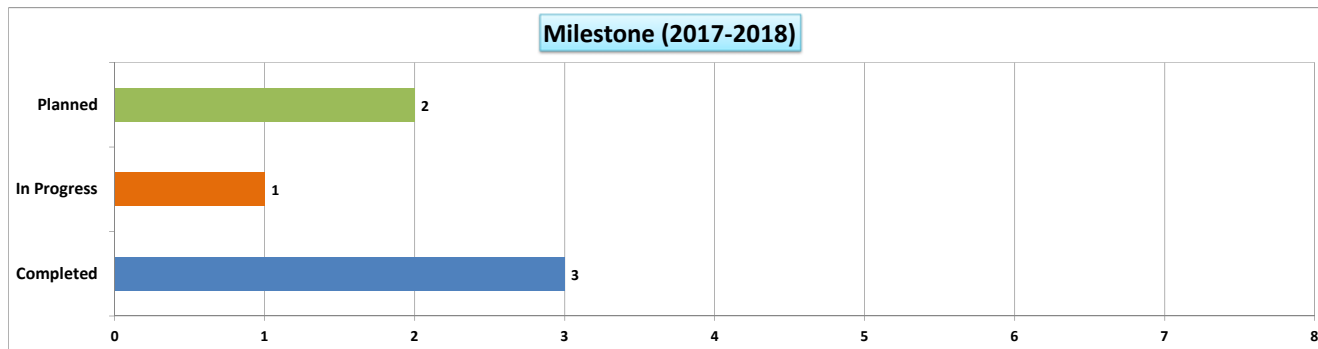
SPI (Schedule Performance Index)

Schedule performance index (SPI) is a ratio of the earned value (EV) to the planned value (PV). $SPI = EV \div PV$. If the SPI is less than one, it indicates that the project is potentially behind schedule to-date whereas an SPI greater than one, indicates the project is running ahead of schedule



SSM-Project Milestone Status 30-Apr-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	4-May-17	29-Jun-17	4-May-17	29-Jun-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	27-Jul-17	29-Mar-18	27-Jul-17	29-Mar-18	Completed	
3	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
4	Stakeholder Engagement- Design Decision	29-Mar-18	24-May-18			In Progress	
5	High Level Design Document (External Publication)	28-Sep-18	28-Sep-18			Planned	
6	Project execution plan approval	1-Oct-18	3-Dec-18			Planned	



SSM-Design Elements Progress 30-Apr-18

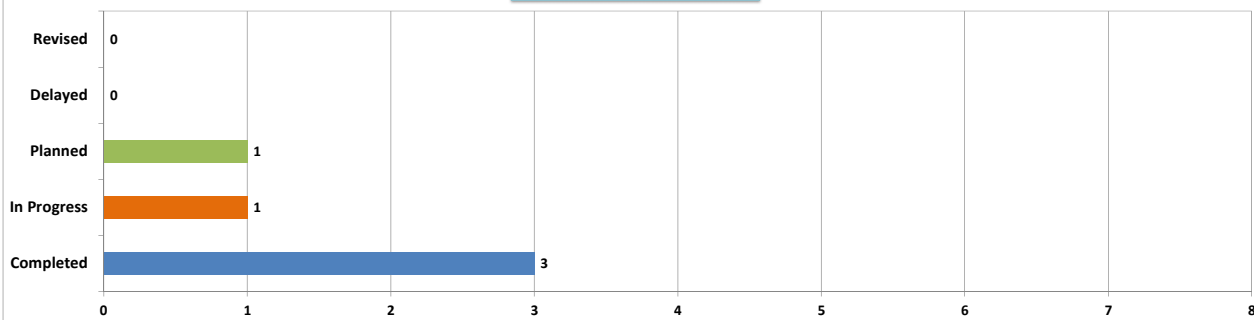
S.No	Design Element	Completion Stages	Stages Completed	STAGES										
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	Internal			External		
						6. Review 1	7. Review 2	8. Review 3	9. Review 4	10. Review 5 (Approval)				
1	DE 2: Energy Ref Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed	Completed	In Progress			
2	DE 1: Energy Congestion Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed	Completed	In Progress			
3	DE 3: Energy Ref Price loss Component	10	6	Completed	Completed	Completed	Completed	Completed	Completed	Completed	In Progress			
4	DE 6: Supplier Pricing	10	6	Completed	Completed	Completed	Completed	Completed	Completed	Completed	In Progress			
5	DE 7: Operating Reserve Reference Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed	Completed	In Progress			
6	DE 8: Reserve Congestion Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed	Completed	In Progress			
7	DE 11: Multi-interval optimization (MIO) pricing run and ramp rate Multiplier	10	6	Completed	Completed	Completed	Completed	Completed	Completed	Completed	In Progress			
8	DE4: Pre or Post interval pricing	10	6	Completed	Completed	Completed	Completed	Completed	Completed	Completed	In Progress			
9	DE 5: Intertie Congestion Price	10	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress				
10	DE 9: Resolving Constraint Violations	10	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress				
11	DE 12: Pricing setting Eligibility for Resources	10	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress				
12	DE 10: Out of Market Operator Actions	10	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress				
13	DE 18: Make Whole Payment	10	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress				
14	DE 19: Uplift Recovery	10	5	Completed	Completed	Completed	Completed	Completed	Completed	In Progress				
15	DE 13: Mitigation Process	10	4	Completed	Completed	Completed	Completed							
16	DE 14: Timing of Application	10	2	Completed	Completed	In Progress		In Progress						
17	DE:15 Reference Levels	10	2	Completed	Completed	In Progress								
18	DE 16: Pricing for Loads	10	3	Completed	Completed	Completed		In Progress						
19	DE 17: Congestion Rents & Loss residuals	10	3	Completed	Completed	Completed								



DAM-Project Milestone Status 30-Apr-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	4-May-17	29-Jun-17	4-May-17	29-Jun-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	27-Jul-17	29-Mar-18	27-Jul-17	29-Mar-18	Completed	
3	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
4	Stakeholder Engagement- Design Decision	29-Mar-18	24-May-18			In Progress	
5	High Level Design Document (External Publication)	21-Dec-18	21-Dec-18			Planned	

Milestone (2017-2018)



DAM-Design Elements Progress 30-Apr-18

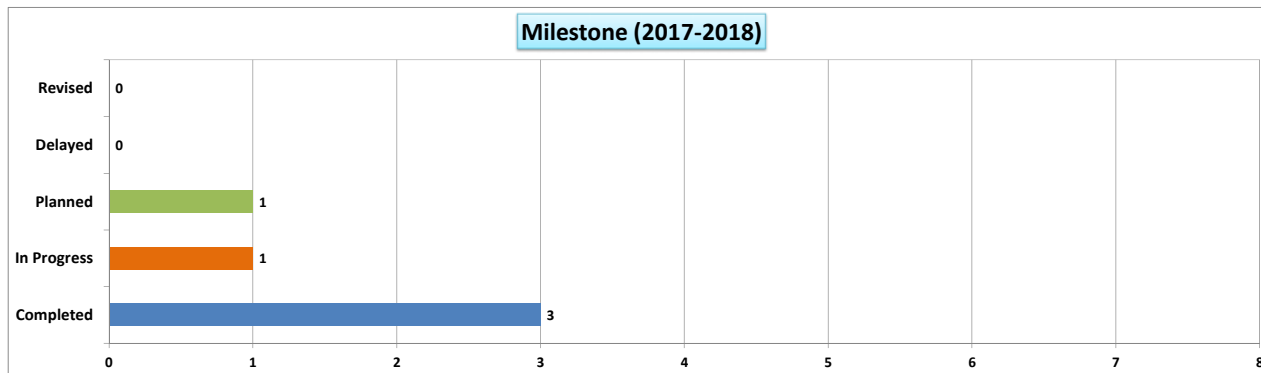
S.No	Design Element	Completion Stages	Stages Completed	STAGES											
				Internal					External						
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	6. Review 1	7. Review 2	8. Review 3	9. Review 4	10. Review 5 (Approval)		
1	DE 1: Reference Quantity (formerly must-offer Requirements)	10	4	Completed	Completed	Completed	Completed	In Progress							
2	DE 4: Reliability Input Parameters	10	4	Completed	Completed	Completed	Completed	In Progress							
3	DE 5: Virtual Transactions	10	1	Completed	Planned										
4	DE 6: Functional Passes	10	4	Completed	Completed	Completed	Completed	In Progress							
5	DE 7: Optimization Energy Limited Resources	10	1	Completed	Planned										
6	DE 8: Submission and Posting Deadlines	10	4	Completed	Completed	Completed	Completed	In Progress							
7	DE 9: Initiation of Operational Commitments	10	4	Completed	Completed	Completed	Completed								
8	DE10: Market Power Mitigation	10	4	Completed	Completed	Completed	Completed								
9	DE 11: Price Setting Eligibility	10	4	Completed	Completed	Completed	Completed	In Progress							
10	DE 12: Reporting Obligations	10	4	Completed	Completed	Completed	Completed								
11	DE 13: Two Settlement for Load	10	4	Completed	Completed	Completed	Completed								
12	DE 14: Two Settlement for Supply	10	4	Completed	Completed	Completed	Completed								
13	DE 15: Make Whole Payments	10	1	Completed	Planned										
14	DE 16: Uplift Recovery	10	1	Completed	Planned			In Progress							
15	DE 17: Financial Transmission Rights	10	4	Completed	Completed	Completed	Completed								
16	DE 18: Market System Failures	10	1	Completed	Planned										
17	DE 2: Load Participation	10	4	Completed	Completed	Completed	Completed	In Progress							
18	DE 3: Supply Participation: Variable Generation	10	1	Completed	Planned										



ERUC-Project Milestone Status

30-Apr-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	4-May-17	29-Jun-17	4-May-17	29-Jun-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	27-Jul-17	29-Mar-18	27-Jul-17	29-Mar-18	Completed	
3	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
4	Stakeholder Engagement- Design Decision	29-Mar-18	24-May-18			In Progress	
5	High Level Design Document (External Publication)	21-Dec-18	21-Dec-18			Planned	



ERUC-Design Elements Progress

30-Apr-18

S.No	Design Elements	Completion Stages	Stages Completed	STAGES													
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	6. Review 1	Internal		External		10. Review 5 (Approval)			
1	DE 1: Functional Passes	10	4	Completed	Completed	Completed	Completed	In Progress									
2	DE 2: Look Ahead Period	10	4	Completed	Completed	Completed	Completed	In Progress									
3	DE 3: Timing and Frequency of Run	10	4	Completed	Completed	Completed	Completed										
4	DE 4: Time Step	10	4	Completed	Completed	Completed	Completed	In Progress									
5	DE 5: Intertie Transactions	10	4	Completed	Completed	Completed	Completed										
6	DE 6: Must Offer Requirements	10	4	Completed	Completed	Completed	Completed										
7	DE 7: Eligibility for Make-whole	10	4	Completed	Completed	Completed	Completed	In Progress									
8	DE 8: Market Participant Data	10	4	Completed	Completed	Completed	Completed	In Progress									
9	DE 9: Commitment Cost Mitigation	10	4	Completed	Completed	Completed	Completed										
10	DE10: Offer Changes	10	4	Completed	Completed	Completed	Completed										
11	DE 11: Binding Start-up Instruction and Operational Constraint	10	4	Completed	Completed	Completed	Completed										
12	DE 12: Calculation of Make Whole Payment	10	4	Completed	Completed	Completed	Completed										
13	DE 13: Failure Charge	10	4	Completed	Completed	Completed	Completed										

Program: MRP-Market Renewal Program

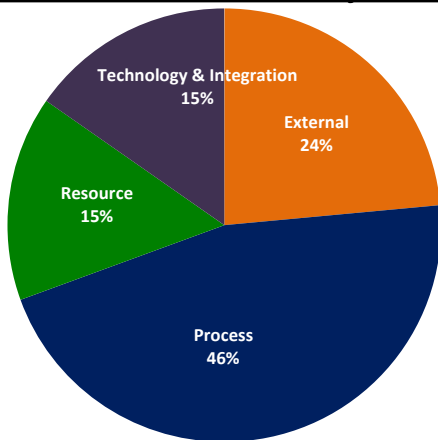
Monthly Risk Report For MRESC

April 30, 2018

Document Ref. No.: PRG_MRR01

Period: Month Ending: 30-Apr-18

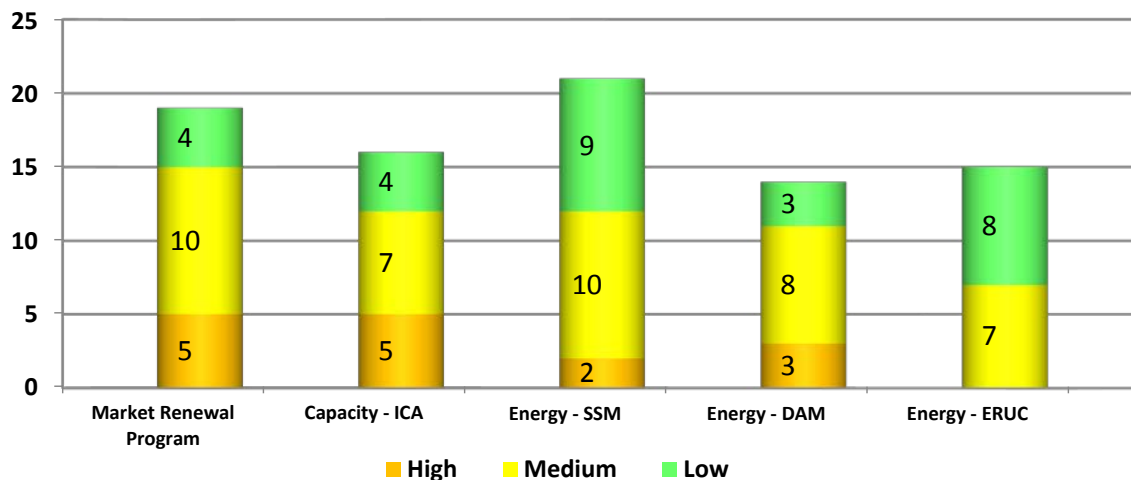
MRP - Total Residual Risk By Category



All program and project risks have been categorised into four categories, with the largest category of risks being categories as "Process" risks.

MRP - Total Residual Risk By Project

Number of Risks

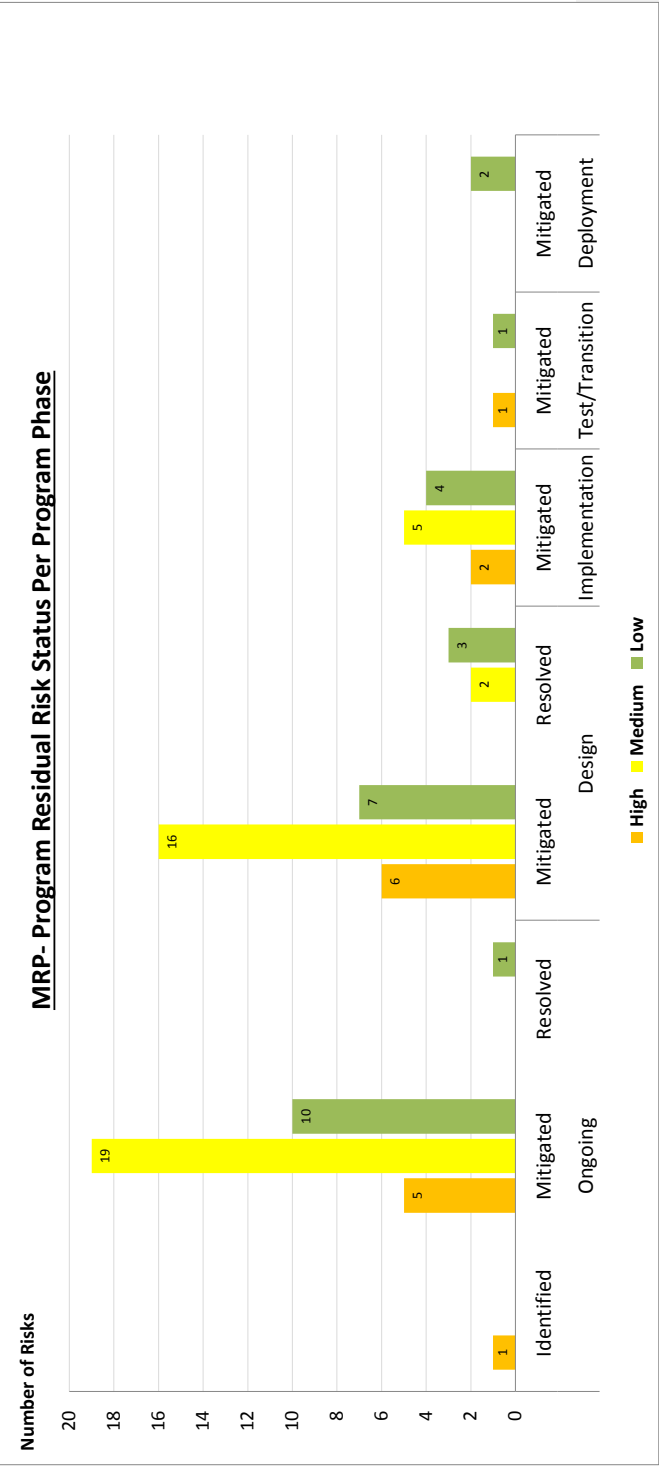


All MRP Risks have been grouped under four projects (SSM, DAM, ERUC and ICA) and Program risks. Each identified risk was assessed with the project team and they documented the risk response tasks that will be implemented proactively to prevent, or at least reduce, the level of the identified risk. In total, we currently have 85 Risks.

MRP RISK SUMMARY - MRESC as of April 30, 2018
TOP RISKS

Risk ID	Work Stream	Description	Residual Risk Level	Response Date	Response Tasks	Trend
ICA_R005	Capacity - ICA	Government changing policies (e.g., mandating specific resource types, etc.), especially as 2018 election approaches.	High	2017/11/02	Frequent communication with government to ensure alignment as much as possible.	🟡
ICA_R019	Capacity - ICA	The need for parallel activities on timeline (e.g., market rules with market manuals at Technical Panel).	High	2017/11/02	Start activities as early as possible.	🟡
SSM_R003	Energy - SSM	NW Generators raise pricing issues with the Government.	High	2017/10/25	Continued careful messaging with the Ministry of Energy (floor pricing).	🟡
SSM_R013	Energy - SSM	Extreme Pressure (political) to expand scope 'Storage' during the Design.	High	2017/10/25	Monitor closely as Storage becomes a focus.	🟡
DAM_R007	Energy - DAM	Contract negotiations fail to incent sufficient participation to achieve material price convergence between DAM & Real Time.	High	2017/10/27	Ensure maximum participant engagement/soliciting on design features to ensure design will incentivize (price certainty, overall lower cost, etc...).	🟡
DAM_R011	Energy - DAM	VG participants may not support participation rules and two-settlement financial outcomes once contracts expire.	High	2017/10/27	Develop a strategic engagement plan with the SE team.	🟡
DAM_R012	Energy - DAM	Contracted or rate-regulated participants may be resistive to DAM participation rules and two-settlement outcomes.	High	2017/10/27	Develop a strategic engagements plan with the SE team.	🟡

NOTES
All risks were further broken down into program phases, to ensure that more focus was put on the design phase risks than deployment.





Program: MRP-Market Renewal Program

Monthly Cost Report for MRESC
June 22, 2018

Document Ref. No.: PRG_MCR05

**Period: Month Ending
31-May-18**

Program Cost Summary:				
	2017 ⁽¹⁾		2018 ⁽¹⁾	
	Operating	Capital	Operating	Capital
<i>Business Plan Approved Costs</i>	9,247		12,700	4,000
<i>Contingency</i>	2,760			
Business Plan with Contingency	12,007		12,700	4,000
<i>Forecast</i>	7,972			
<i>2018 Forecast Baseline (end Q1-2018)</i>			17,700	550
<i>2018 Forecast Rolling</i>			16,900	580
<i>Contingency ⁽³⁾</i>				90
Forecast with Contingency	7,972		16,900	670
<i>Variance (2018 Rolling vs Baseline Forecast)</i>			-800	120
<i>Actual Costs ⁽²⁾</i>	7,902	201	4,947	560
<i>Contingency</i>				
Actual with Contingency	7,902	201	4,947	560

Notes:

(1) Report in thousands (000's).

(2) Actual costs for 2018 are YTD.

(3) No contingency for operating forecasted costs.

Prepared by: MRP Cost Controller

MRP - Operating Financial Summary - 31-May-18

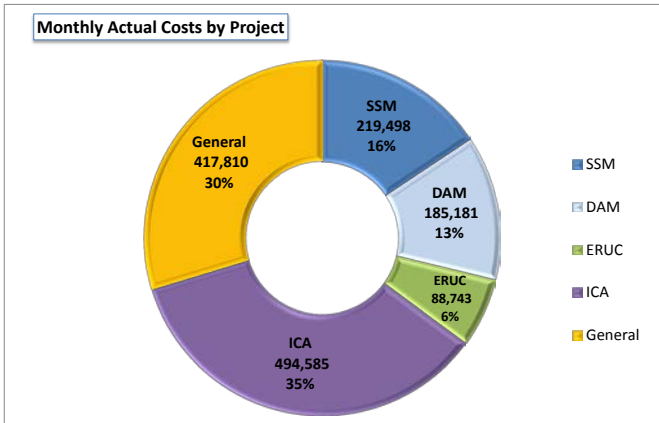
The Business Plan Approved Costs for MRP have been divided into the four projects: SSM, DAM, ERUC, and ICA, as well as a general account for tracking costs associated with Program related activities. Each project has been forecasted to reflect the cost expectations for 2018. The actual costs will be tracked against the 2018 baseline forecast.

Variance Summary:

MRP spend for May was 30% above the monthly forecast as actuals reflect a 6 week pay cycle instead of the average 4 week pay cycle. This accounts for the "above forecast" status on each project.

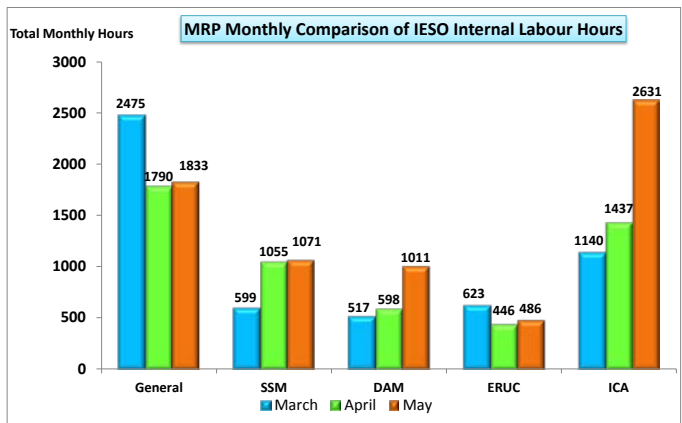
Overview of MRP Monthly Costs: 31-May-18

MRP Operating Costs								Year to Date						
Project Name	Business Plan Approved Costs	2018 Forecast Baseline	Monthly				Status for 31-May-18	Comments	YTD Business Plan Approved Costs	YTD 2018 Forecast Baseline	YTD Actual	YTD Actual vs Forecast	YTD Variance %	YTD Status
			Actual	Variance Actual vs Forecast	Variance %									
SSM	\$233,224	\$216,579	\$219,498	\$2,920	1%	Above Forecast		\$1,137,371	\$671,384	\$612,686	(\$58,698)	(9%)	Below Forecast	
DAM	\$87,220	\$113,292	\$185,181	\$71,889	63%	Above Forecast	Onboarding of additional settlement SME as well as shared resources between SSM and DAM	\$392,976	\$547,767	\$583,563	\$35,796	7%	Above Forecast	
ERUC	\$87,220	\$85,110	\$88,743	\$3,633	4%	Above Forecast		\$392,976	\$423,038	\$394,296	(\$28,742)	(7%)	Below Forecast	
ICA	\$300,649	\$314,792	\$494,585	\$179,793	57%	Above Forecast		\$1,474,485	\$1,487,966	\$1,526,571	\$38,606	3%	Above Forecast	
General	\$392,847	\$452,625	\$417,810	(\$34,815)	(8%)	Below Forecast		\$1,935,487	\$1,979,946	\$1,829,812	(\$150,134)	(8%)	Below Forecast	
Total Program	\$1,101,161	\$1,182,398	\$1,405,818	\$223,420	19%	Above Forecast		\$5,333,295	\$5,110,101	\$4,946,928	(\$163,172)	(3%)	Below Forecast	



Notes:-

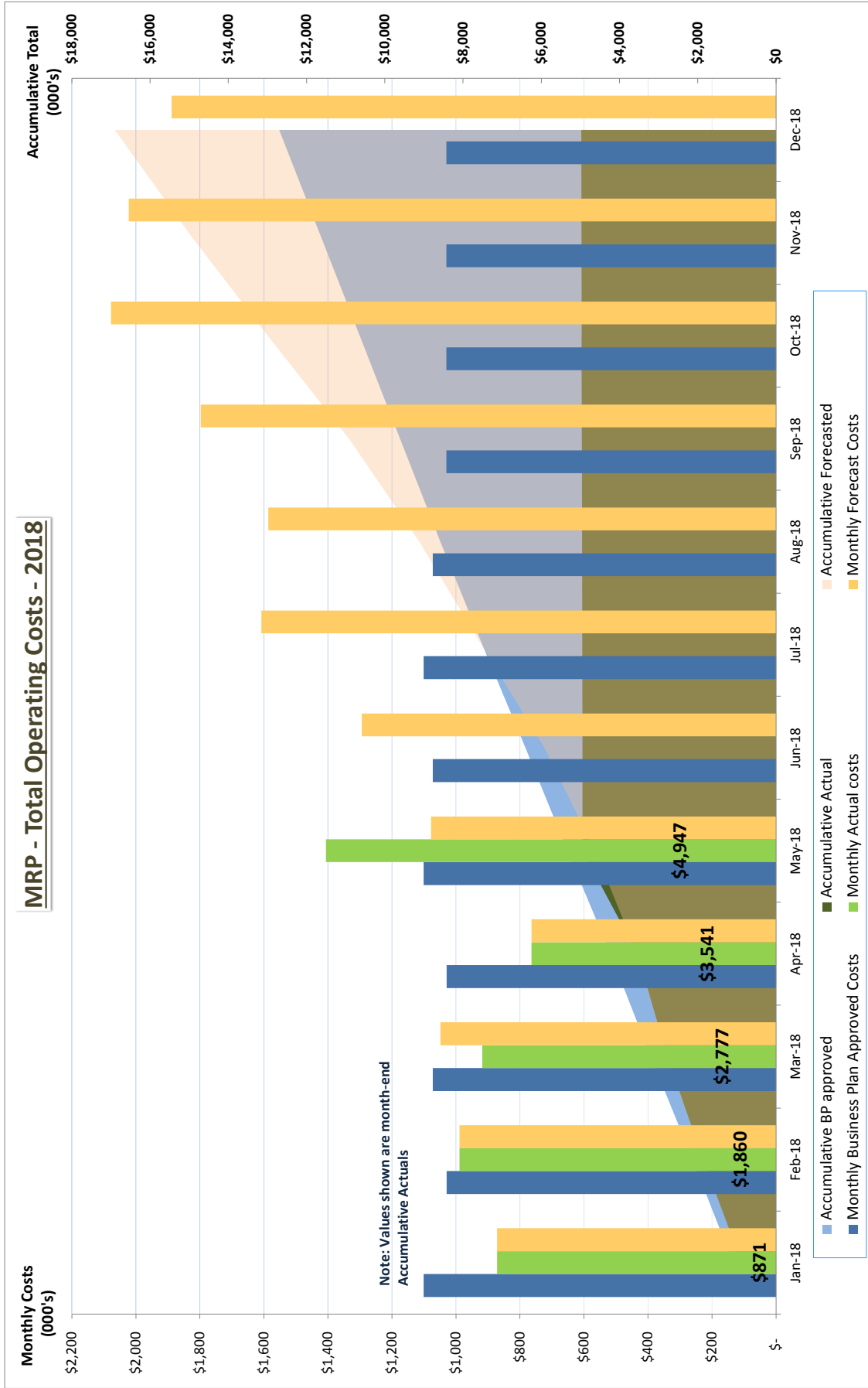
The above graph reflects MRP actual cost allocation per projects and percentage.



Notes:-

DAM's increased hours (May over April) reflect the additional SME resource brought on in May as well as resource sharing between SSM and DAM. The increase in ICA hours shows the impact of the additional planners joining the team.

Monthly Comparison - Project Actuals						
Project	Jan	Feb	Mar	Apr	May	YTD
SSM	69,769	88,106	83,920	151,393	219,498	612,686
DAM	105,936	112,941	92,211	87,294	185,181	583,563
ERUC	72,792	80,158	97,317	55,286	88,743	394,296
ICA	358,104	272,219	234,502	167,162	494,585	1,526,571
General	264,630	435,358	409,454	302,561	417,810	1,829,812
Total	871,230	988,782	917,404	763,695	1,405,818	4,946,928



Notes:- As illustrated above in June the forecasted costs will be higher than the approved budget costs, and will continue to increase as new resources are on-boarded.

MRP - Capital Financial Summary - 31-May-18

The capital costs approved under the 2018 Approved Business Plan is to capture the costs of detailed design work projected for 2018 as well as the costs for relocating the MRP team to our UMR location.

Variance Summary:

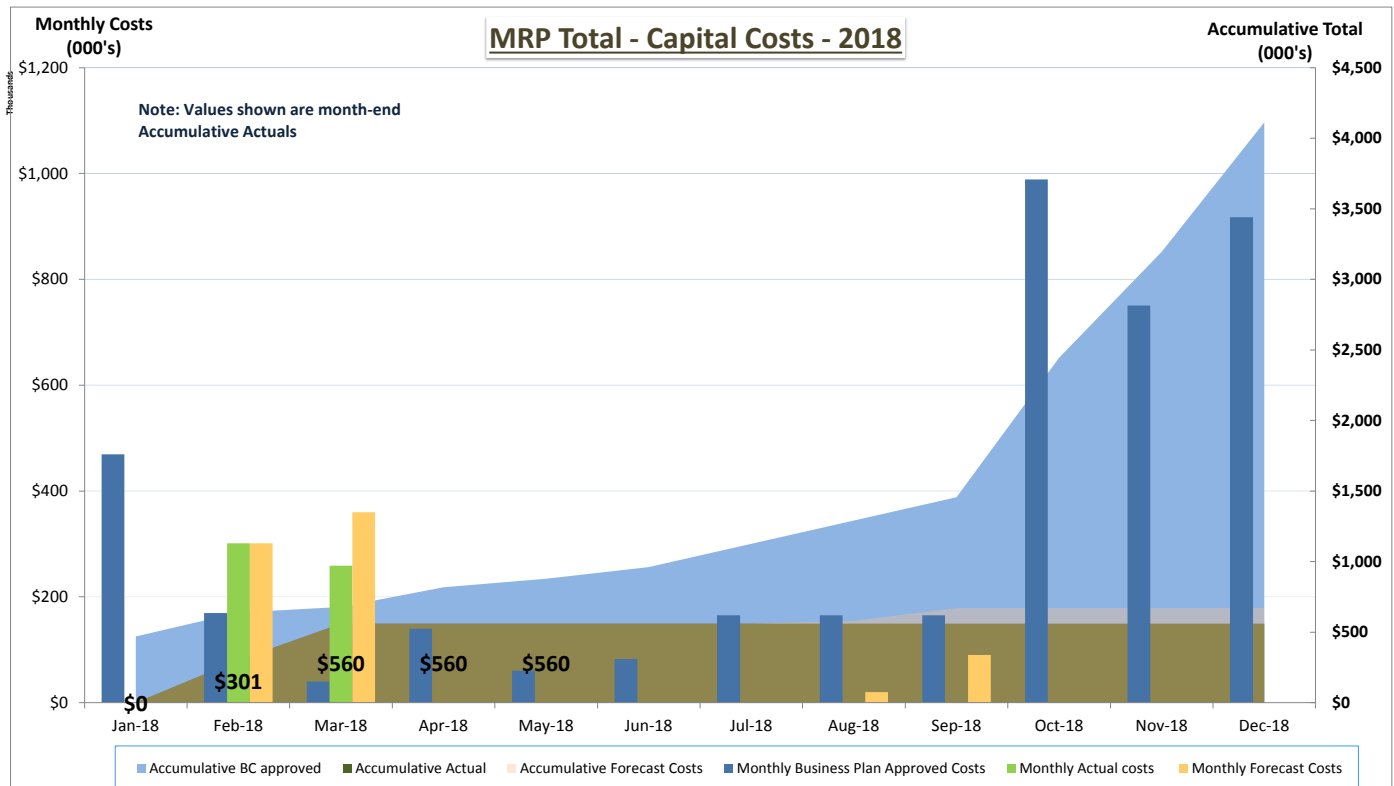
Capital Spend YTD reflects delay in delivery of AV Equipment for the meeting rooms at UMR. **No change in Capital costs expected until AV Equipment is delivered and installed in August - September.**

Areas for Improvements:

The capital budget spend planned for Q4 2018 is now expected to be delayed to Q1 2019, as High Level Designs completion are now being projected for the end of Q4, not in Q3 as originally projected. The \$770,000 projected for the UMR relocation costs will now be the only MRP capital spend for 2018.

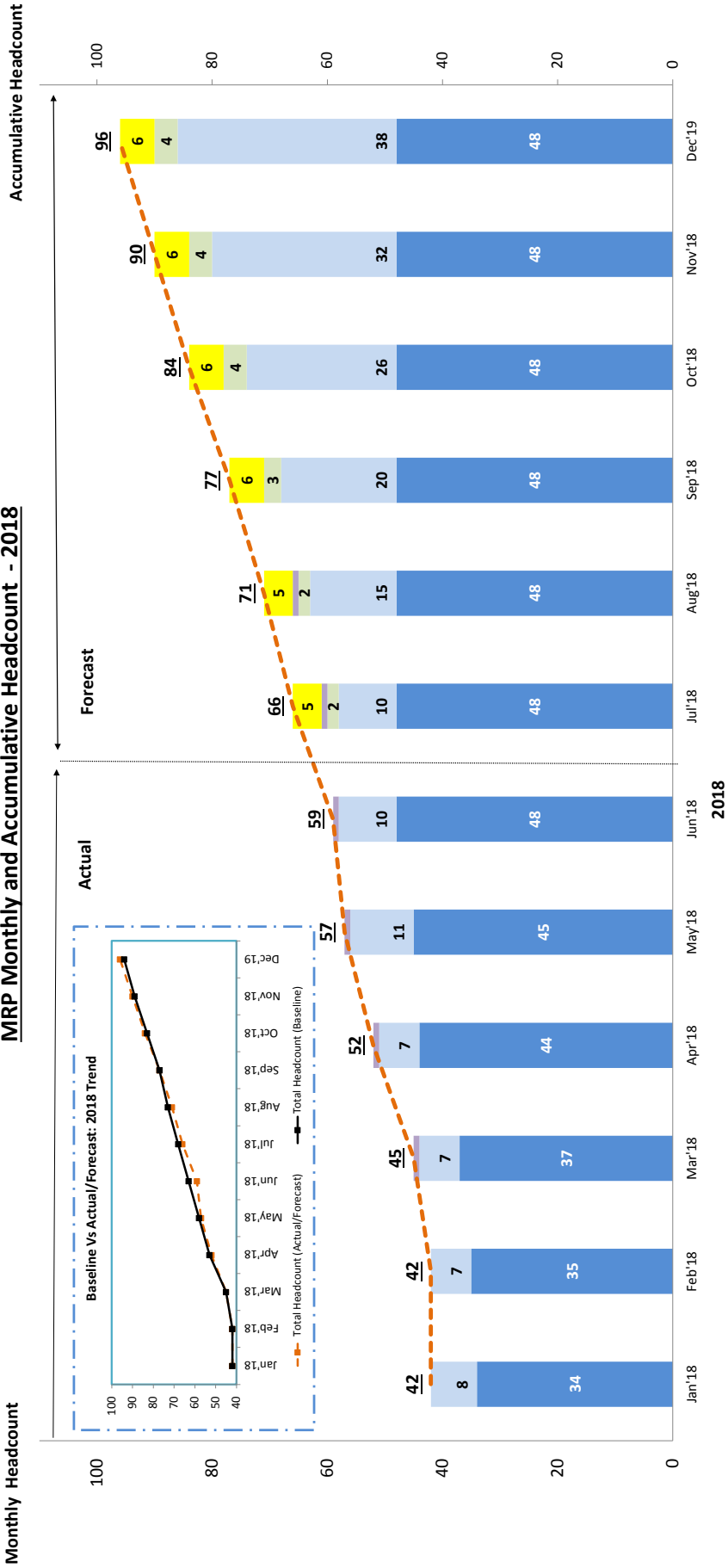
Overview of MRP Monthly Costs: 31-May-18

Monthly								Year to Date					
Project Name	Business Plan Approved Costs	2018 Forecast Baseline	Actual	Variance Actual vs Forecast	Variance %	Status for 31-May-18	Comments	YTD Business Plan Approved Costs	YTD 2018 Forecast Baseline	YTD Actual	YTD Actual vs Forecast	Variance %	YTD Status
General - UMR	\$60,500	\$0	\$0	\$0		Below Forecast	Capital Spend YTD reflects delay in delivery of AV Equipment for the meeting rooms at UMR.	\$768,260	\$560,145	\$560,145	\$0	0%	Below Forecast
Total Program	\$60,500	\$0	\$0	\$0		Below Forecast		\$768,260	\$560,145	\$560,145	\$0	0%	Below Forecast



Notes:- The graph reflects the initial expectations stated in the approved business plan with capital budget of \$4M and with detailed designs beginning in Q4 2018. Capital spend forecast has been revised to reflect the lag in detail design. UMR Relocation is the only capital spend forecasted for 2018 with 70% of the UMR forecast spent in Q1.

MRP Monthly and Accumulative Headcount - 2018



Legend:
 ■ Headcount (Regular) ■ Headcount (Temp) ■ Agency ■ 6 month Rotation ■ Incremental Forecasted - - Total Headcount (Actual/Forecast)

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Program: MRP-Market Renewal Program

Project: Total MRP Program

Monthly Schedule Report for MRESC
May 31, 2018

Document Ref. No.: MRP_MSR03_18-05-31
(MSR ~ 03)

Project Commencement Reporting Date: Jan 1, 2018
Project Completion Reporting Date: Dec 31, 2018

Reporting Range Period	From January 1, 2018	<<<<<	>>>>>	To May 31, 2018
------------------------	-------------------------	-------	-------	--------------------

For Week ending	May 31, 2018
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Reporting Date	June 7, 2018
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Program Schedule Status

Schedule Baseline	Cumulative Planned %	Cumulative Actual %	Variation %	Schedule Variance ⁽¹⁾
	35.2%	32.2%	(-3.0%)	Under Threshold

Month End Project Performance Status

Schedule Performance	Planned Value (PV)	Earned Value (EV)	Schedule Performance Index (SPI) ⁽²⁾	Schedule Status ⁽²⁾
	\$5,902,313	\$5,400,981	0.92	Behind Schedule

Cost Performance	Actual Cost (AC)	Earned Value (EV)	Cost Performance Index (CPI) ⁽³⁾	Budget Status ⁽³⁾
	\$4,946,928	\$5,400,981	1.09	Under Budget

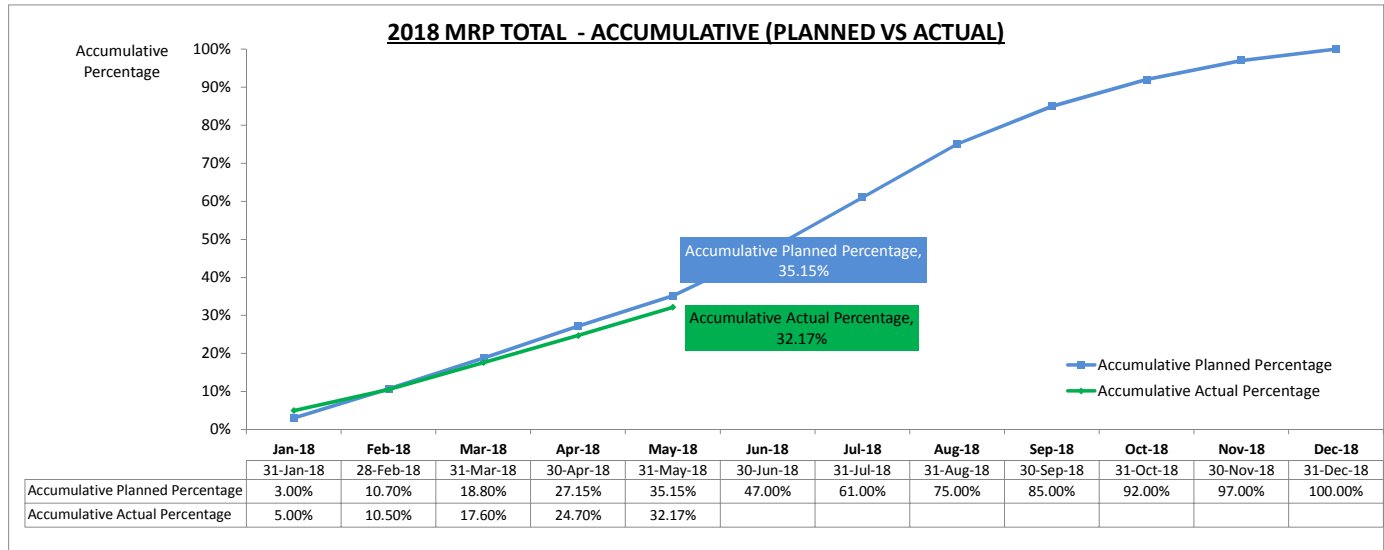
Legend for Status:

(1). Threshold upper limit: assumption is -10%, If variation exceed (-10%) threshold limit schedule to be revised
 (2). Schedule: PMI defined as "Behind Schedule" SPI<1, if SPI>1 "Ahead of Schedule" or if SPI=1 "On Schedule"
 (3). Budget: PMI defined as "Under Budget" If CPI >1, if CPI <1 "Over Budget" or if CPI=1 "On Budget"
 Note: SPI & CPI will be calculated on Monthly Basis, above CPI value based on YTD actuals.

Monthly Status as of: 31-May-18

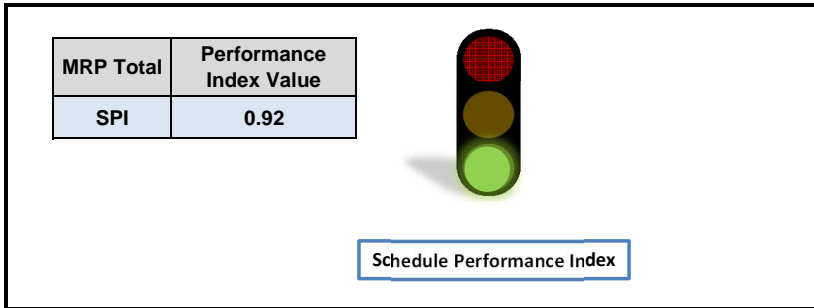
PROGRESS INDICATORS								
MRP	2018 Total Forecast at Completion (BAC) ⁽¹⁾	2018 Total Accumulated Actual Cost (AC)	Budget Equivalent weightage %	Planned Scheduled (start)	Planned Scheduled (finish)	Monthly scheduled Planned%	Monthly Schedule Actual Progress	(Weighted) Schedule % Completed
SSM	\$2,913,934	\$612,686	17.4%	01-Jan-18	31-Dec-18	43.32%	41.96%	7.3%
DAM	\$1,168,091	\$583,563	7.0%	01-Jan-18	31-Dec-18	32.75%	28.07%	2.0%
ERUC	\$916,811	\$394,296	5.5%	01-Jan-18	31-Dec-18	37.88%	35.17%	1.9%
ICA	\$5,747,225	\$1,526,571	34.2%	01-Jan-18	31-Dec-18	31.22%	24.57%	8.4%
GENERAL	\$6,045,357	\$1,829,812	36.0%	01-Jan-18	31-Dec-18	35.00%	35.00%	12.6%
MRP Total	\$16,791,419	\$4,946,928	100%			35.2%		32.2%

PERFORMANCE INDICATORS			
Earned Value (EV) <small>(BAC X Monthly Scheduled Actual Progress)</small>	Planned Value (PV) <small>(BAC X Monthly Scheduled Planned %)</small>	CPI <small>(EV/AC)</small>	SPI <small>(EV/PV)</small>
\$1,222,687	\$1,262,316	2.00	0.97
\$327,883	\$382,550	0.56	0.86
\$322,442	\$347,288	0.82	0.93
\$1,412,093	\$1,794,284	0.93	0.79
\$2,115,875	\$2,115,875	1.16	1.00
\$5,400,981	\$5,902,313	1.09	0.92



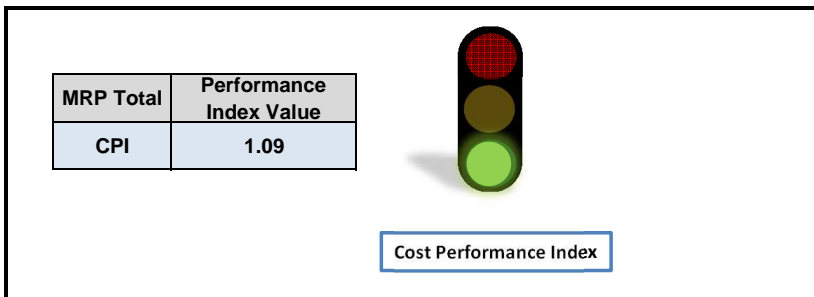
Notes
 (1) 2018 Forecast values and not Budget values will be used.
 (2) Overall Schedule Variance for MRP Total is -3%

Monthly Performance Status: 31-May-18

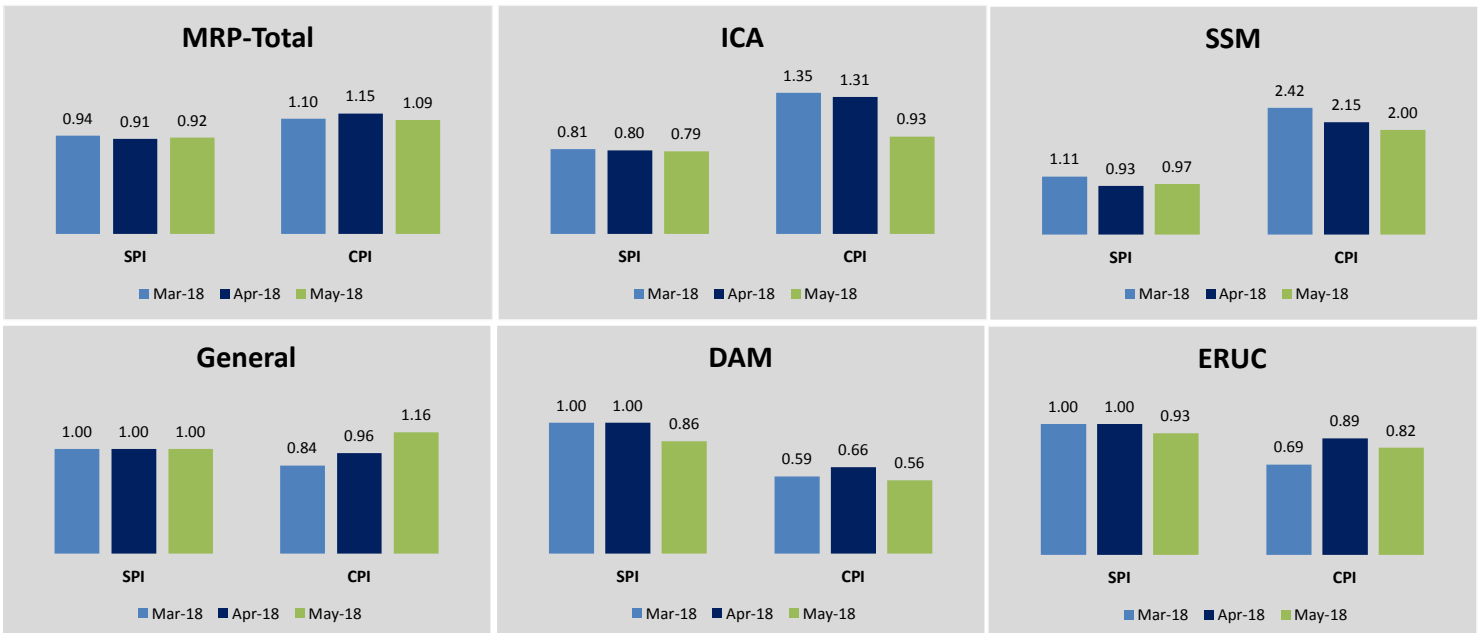


Threshold limits

Index	Red	Yellow	Green
SPI	<0.70	0.70 to 0.90	above 0.9
CPI	<0.80	0.80 to 0.90	above 0.9



Three Month Rolling Performance Comparison 31-May-18



Note: The above graphs are based on actual progress calculated for ICA & SSM starting end of Feb. For ERUC and DAM, SPI and CPI are calculated from month end April, with an assumption of 1.0 index for the two previous months.

PMI Definitions:

CPI (Cost Performance Index)

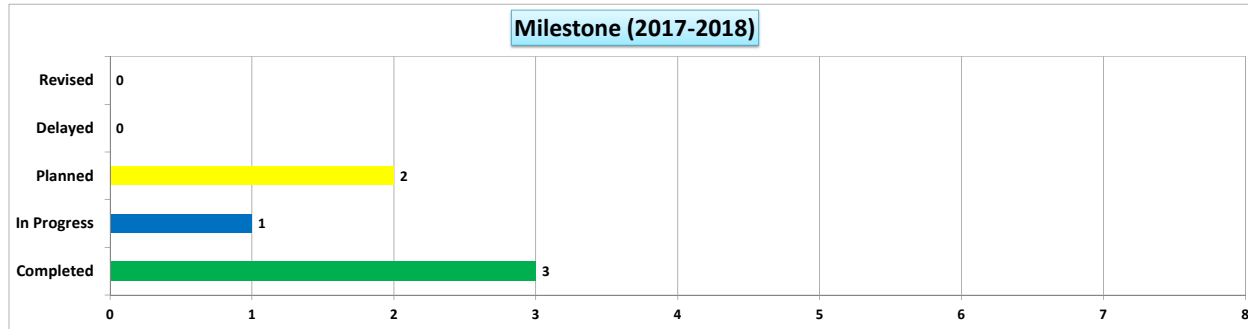
The cost performance index (CPI) is a ratio that measures the financial effectiveness of a project by dividing the budgeted cost of work performed (BCWP or EV) by the actual cost of work performed (ACWP or AC). If the result is more than 1, then the project is under budget

SPI (Schedule Performance Index)

Schedule performance index (SPI) is a ratio of the earned value (EV) to the planned value (PV). $SPI = EV \div PV$. If the SPI is less than one, it indicates that the project is potentially behind schedule to-date whereas an SPI greater than one, indicates the project is running ahead of schedule

SSM-Project Milestone Status 31-May-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	4-May-17	29-Jun-17	4-May-17	29-Jun-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	27-Jul-17	29-Mar-18	27-Jul-17	29-Mar-18	Completed	
3	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
4	Stakeholder Engagement- Design Decision	29-Mar-18	24-May-18			In Progress	additional material to be presented in July Session
5	High Level Design Document (External Publication)	28-Sep-18	28-Sep-18			Planned	
6	Project execution plan approval	1-Oct-18	3-Dec-18			Planned	



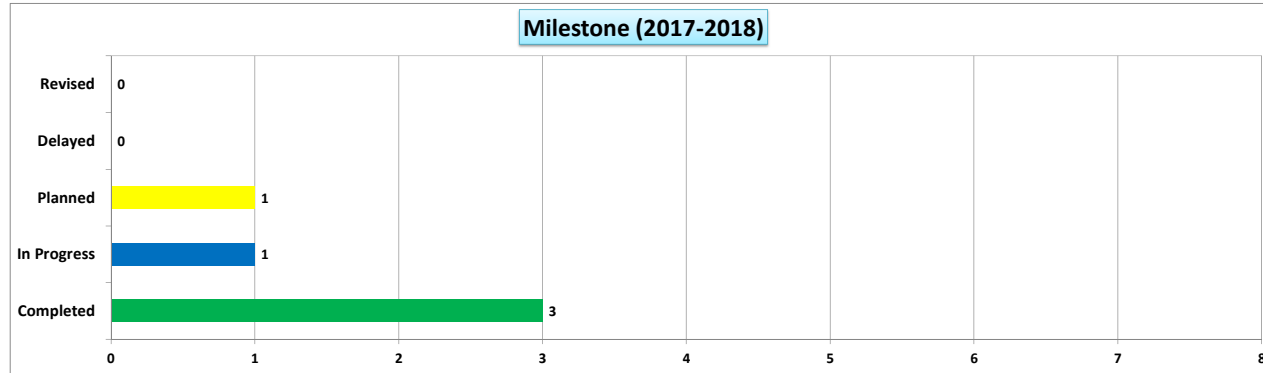
SSM-Design Elements Progress 31-May-18

S.No	Design Element	Completion Stages	Stages Completed	STAGES										
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	Internal			External		
				6. Review 1	7. Review 2	8. Review 3	9. Review 4	10. Review 5 (Approval)						
1	DE 2: Energy Ref Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
2	DE 1: Energy Congestion Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
3	DE 3: Energy Ref Price loss Component	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
4	DE 6: Supplier Pricing	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
5	DE 7: Operating Reserve Reference Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
6	DE 8: Reserve Congestion Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
7	DE 11: Multi-interval optimization (MIO) pricing run and ramp rate Multiplier	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
8	DE4: Pre or Post interval pricing	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
9	DE 5: Intertie Congestion Price	10	5	Completed	Completed	Completed	Completed	Completed	In Progress					
10	DE 9: Resolving Constraint Violations	10	5	Completed	Completed	Completed	Completed	Completed	In Progress					
11	DE 12: Pricing setting Eligibility for Resources	10	5	Completed	Completed	Completed	Completed	Completed	In Progress					
12	DE 10: Out of Market Operator Actions	10	5	Completed	Completed	Completed	Completed	Completed	In Progress					
13	DE 18: Make Whole Payment	10	5	Completed	Completed	Completed	Completed	Completed	In Progress					
14	DE 19: Uplift Recovery	10	5	Completed	Completed	Completed	Completed	Completed	In Progress					
15	DE 13: Mitigation Process	10	4	Completed	Completed	Completed	Completed	In Progress						
16	DE 14: Timing of Application	10	2	Completed	Completed	In Progress	In Progress	In Progress						
17	DE:15 Reference Levels	10	2	Completed	Completed	In Progress	In Progress	In Progress						
18	DE 16: Pricing for Loads	10	3	Completed	Completed	Completed		In Progress						
19	DE 17: Congestion Rents & Loss residuals	10	3	Completed	Completed	Completed	In Progress							

ERUC-Project Milestone Status

31-May-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	4-May-17	29-Jun-17	4-May-17	29-Jun-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	27-Jul-17	29-Mar-18	27-Jul-17	29-Mar-18	Completed	
3	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
4	Stakeholder Engagement- Design Decision	29-Mar-18	24-May-18			In Progress	additional material to be presented in July Session
5	High Level Design Document (External Publication)	21-Dec-18	21-Dec-18			Planned	



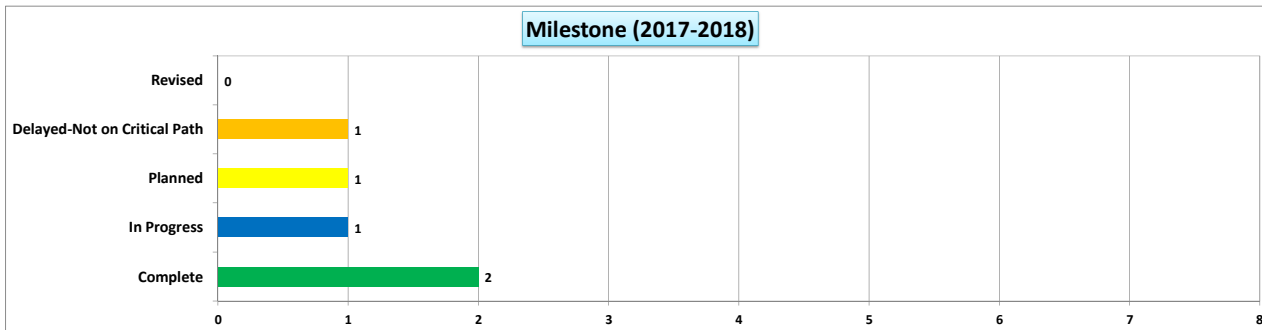
ERUC-Design Elements Progress

31-May-18

S.No	Design Elements	Completion Stages	Stages Completed	STAGES										
									Internal			External		
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	6. Review 1	7. Review 2	8. Review 3	9. Review 4	10. Review 5 (Approval)	
1	DE 1: Functional Passes	10	4	Completed	Completed	Completed	Completed	In Progress						
2	DE 2: Look Ahead Period	10	4	Completed	Completed	Completed	Completed	In Progress						
3	DE 3: Timing and Frequency of Run	10	4	Completed	Completed	Completed	Completed	In Progress						
4	DE 4: Time Step	10	4	Completed	Completed	Completed	Completed	In Progress						
5	DE 5: Intertie Transactions	10	3	Completed	Completed	Completed	In Progress							
6	DE 6: Must Offer Requirements	10	4	Completed	Completed	Completed	Completed							
7	DE 7: Eligibility for Make-whole	10	4	Completed	Completed	Completed	Completed	In Progress						
8	DE 8: Market Participant Data	10	3	Completed	Completed	Completed	In Progress	In Progress						
9	DE 9: Commitment Cost Mitigation	10	4	Completed	Completed	Completed	Completed							
10	DE10: Offer Changes	10	4	Completed	Completed	Completed	Completed							
11	DE 11: Binding Start-up Instruction and Operational Constraint	10	3	Completed	Completed	Completed	In Progress							
12	DE 12: Calculation of Make Whole Payment	10	4	Completed	Completed	Completed	Completed							
13	DE 13: Failure Charge	10	4	Completed	Completed	Completed	Completed	In Progress						

ICA-Project Milestone Status 31-May-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	18-May-17	20-Jul-17	18-May-17	20-Jul-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	16-Aug-17	17-Apr-18	16-Aug-17		In Progress	
3	RFP for Auction Engine	1-Feb-18	3-Jul-18			Delayed-Not on Critical Path	Will be reforecasted based on ICA priorities
4	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
5	Stakeholder Engagement- Design Decision	2-Aug-18	17-Sep-18			Planned	



ICA-Design Elements Progress 31-May-18

S.No	Design Elements	Completion Stages	Stages Completed	STAGES										
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	Internal	External	Internal	Approval		
									6. Review 1	7. Review 2	8. Review 3	9. Review 4		
1	DE 1: Participation Requirement	9	3	Completed	Completed	Completed	In Progress							
2	DE 2: Resource Eligibility	9	3	Completed	Completed	Completed	In Progress							
3	DE 3: Qualified Capacity	9	3	Completed	Completed	Completed	In Progress							
4	DE 4: Market Power Mitigation	9	3	Completed	Completed	Completed	In Progress							
5	DE 5: Length of forward Period	9	3	Completed	Completed	Completed	In Progress							
6	DE 6: Commitment Period	9	3	Completed	Completed	Completed	In Progress							
7	DE 7: Multi year Commitment	9	3	Completed	Completed	Completed	In Progress							
8	DE 8: Locational Considerations	9	3	Completed	Completed	Completed	In Progress							
9	DE 8: Locational Considerations-Part 2	9	3	Completed	Completed	Completed	In Progress							
10	DE 9: Slope of Demand Curve	9	3	Completed	Completed	Completed								
11	DE 9: Demand Curve Analysis	9	0	In Progress	Planned									
12	DE 10: Target Capacity	9	3	Completed	Completed	Completed	In Progress							
13	DE 11: Min/Max Capacity Limits	9	3	Completed	Completed	Completed								
14	DE 12: Net Cost of New Entry	9	3	Completed	Completed	Completed	In Progress							
15	DE 13: Max auction Clearing Price	9	3	Completed	Completed	Completed								
16	DE 14: Rebalancing Auctions	9	3	Completed	Completed	Completed	In Progress							
17	DE 15: Resource Obligations (within forward period)	9	3	Completed	Completed	Completed	In Progress							
18	DE 16: Non-performance Implications (within forward period)	9	3	Completed	Completed	Completed								
19	DE 17: Resource performance Obligation	9	3	Completed	Completed	Completed	In Progress							
20	DE 18: Performance Assessment	9	3	Completed	Completed	Completed	In Progress							
21	DE 19: Cost Recovery	9	3	Completed	Completed	Completed	In Progress							

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Program: MRP-Market Renewal Program

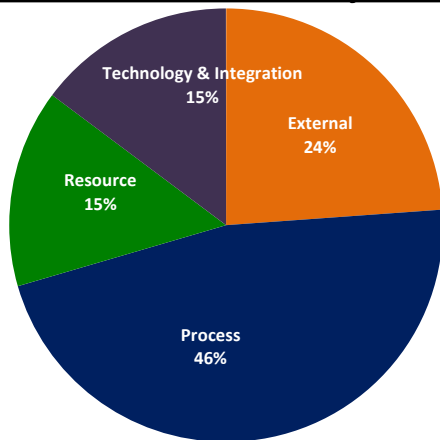
Monthly Risk Report For MRESC

May 31, 2018

Document Ref. No.: PRG_MRR01

Period: Month Ending: 31-May-18

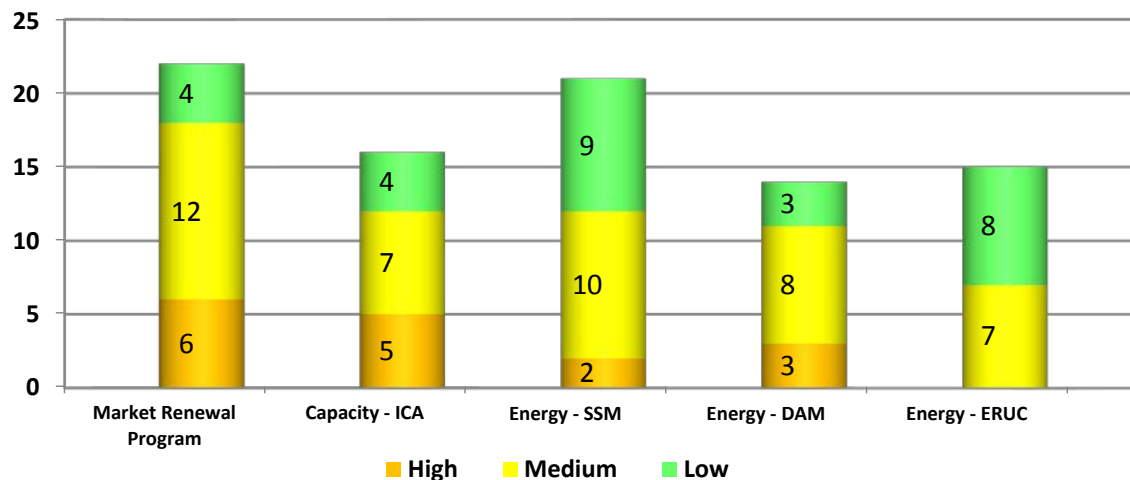
MRP - Total Residual Risk By Category



All program and project risks have been categorised into four categories, with the largest category of risks being categories as "Process" risks.

MRP - Total Residual Risk By Project

Number of Risks



All MRP Risks have been divided into the four projects: SSM, DAM, ERUC and ICA, and Program risks. Each identified risk was assessed with the project team, and the document the risk response tasks that will be implemented proactively to prevent or at least reduce the level of the identified risk. In total we currently have 88 Risks

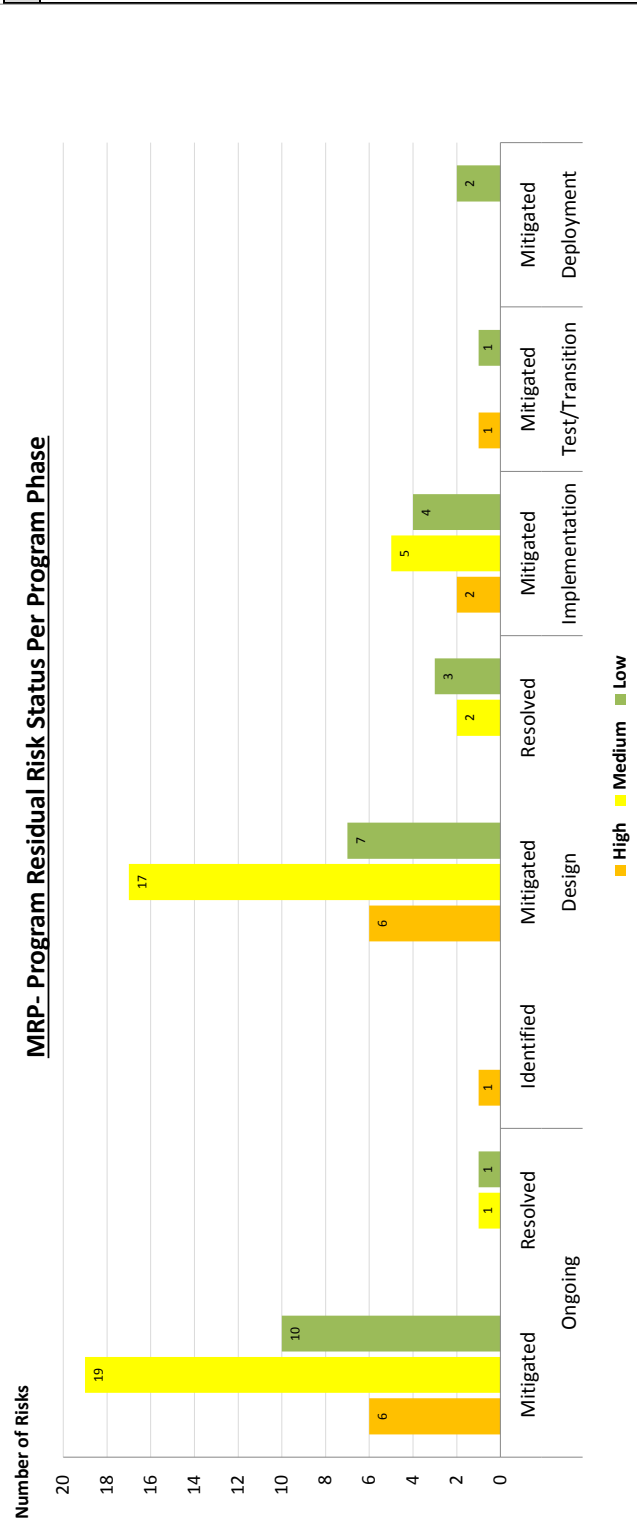


MRP RISK SUMMARY - MRESC as of My 31, 2018

TOP MRP CONTROLLABLE RISKS

Risk ID	Work Stream	Program Phase	Category	Description	Residual Risk Level	Response Tasks	Trend
MRP_R003	Market Renewal Program	Ongoing	Process	Critical interdependencies with other projects (e.g. CRS Replacement)	High	MRP Representation on dependent projects and representation on PSC. MRP leads and BA's to work with dependant projects to identify any impacts during design phase.	—
MRP_R005	Market Renewal Program	Ongoing	Process	Difficulty reaching agreement with internal stakeholders (Change Management).	High	Operations and IT Leads assigned to reduce the impact as they are representing their respective areas. Director's Forum is setup to facilitate these escalations. Final step for resolution is the MRESC	—
MRP_R015	Market Renewal Program	4.1 Implementation	Technology & Integration	Design decisions need to be revisited due to technical limitations	High	IT Lead and resources have been introduced early on the program to reduce the likelihood and impact of this occurring. Furthermore software vendors will be part of the HLD.	—
ICA_R019	Capacity - ICA	4.5 Test/Transition	Process	The need for parallel activities on timeline (e.g. market rules with market manuals at technical panel)	High	Start activities as early as possible.	—
DAM_R007	Energy - DAM	3.5 Design	Process	Contract negotiations fail to incent sufficient participation to achieve material price convergence between DAM & Real Time	High	Ensure full participants engaging/soliciting on design features to ensure design will incentivize (price certainty, overall lower cost, etc...)	—
DAM_R012	Energy - DAM	3.5 Design	Process	Contracted or rate-regulated participants may be resistive to DAM participation rules and two-settlement outcomes	High	Develop a strategic engagements plan with the SE team	—
ICA_R024	Capacity - ICA	3.5 Design	Process	Lack of clarity regarding division of accountability between ICA Team and line of business	High	Engage internal stakeholders regarding roles and responsibilities of line staff vs. the ICA Team	—
MRP_R022	Market Renewal Program	3.5 Design	Process	Business Case approvals - approval delays could cause release of Capital expenditure for Detail work on Energy and Capacity work streams	High	TBD	—

MRP- Program Residual Risk Status Per Program Phase



Updates on KPMG Risk Assessment
 KPMG Risk Assessment Project Kick off - completed on 18 June. Their team will be onboarded during June, and begin to review current MRP risks and methodology. The first phase of the engagement is expected to be five months, with a final presentation on findings to the Audit Committee and Board of Directors in December.



Program: MRP-Market Renewal Program

Monthly Cost Report for MRESC
July 18, 2018

Document Ref. No.: PRG_MCR06

**Period: Month Ending
30-Jun-18**

Program Cost Summary:				
	2017 ⁽¹⁾		2018 ⁽¹⁾	
	Operating	Capital	Operating	Capital
<i>Business Plan Approved Costs</i>	9,247		12,700	4,000
<i>Contingency</i>	2,760			
Business Plan with Contingency	12,007		12,700	4,000
<i>Forecast</i>	7,972			
<i>2018 Forecast Baseline (end Q1-2018)</i>			17,700	550
<i>2018 Forecast Rolling</i>			16,989	580
<i>Contingency ⁽³⁾</i>				90
Forecast with Contingency	7,972		16,989	670
<i>Variance (2018 Rolling vs Baseline Forecast)</i>			-711	120
<i>Actual Costs ⁽²⁾</i>	7,902	201	5,995	560
<i>Contingency</i>				
Actual with Contingency	7,902	201	5,995	560

Notes:

(1) Report in thousands (000's).

(2) Actual costs for 2018 are YTD.

(3) No contingency for operating forecasted costs.

Prepared by: MRP Cost Controller

MRP - Operating Financial Summary - 30-Jun-18

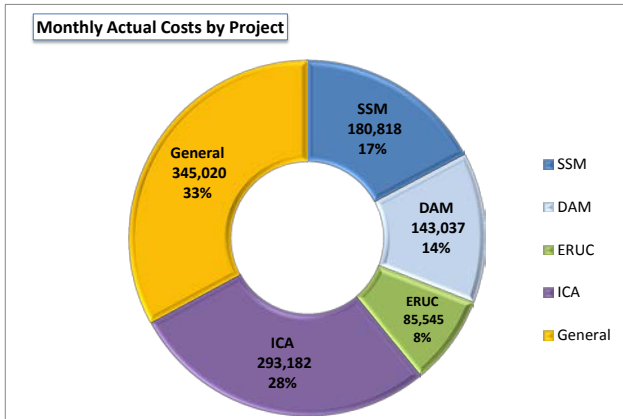
The Business Plan Approved Costs for MRP have been divided into the four projects: SSM, DAM, ERUC, and ICA, as well as a general account for tracking costs associated with Program related activities. Each project has been forecasted to reflect the cost expectations for 2018. The actual costs will be tracked against the 2018 baseline forecast.

Variance Summary:

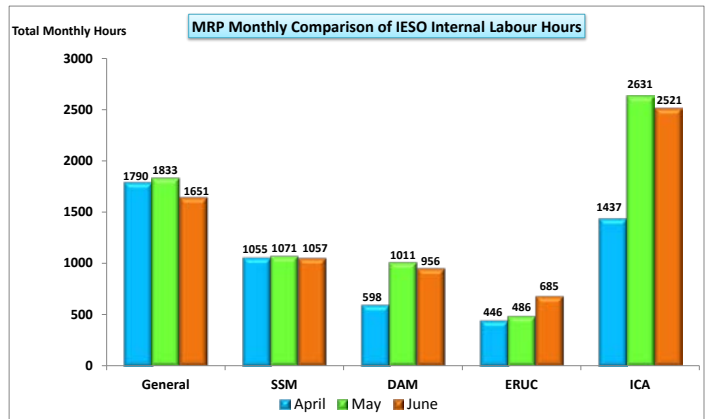
MRP spend for June was 25% below the baseline forecast. The baseline forecast does not reflect the delayed start dates for a number of incremental resources.

Overview of MRP Monthly Costs: 30-Jun-18

MRP Operating Costs								Year to Date						
Project Name	Business Plan Approved Costs	2018 Forecast Baseline	Monthly				Status for 30-Jun-18	Comments	YTD Business Plan Approved Costs	YTD 2018 Forecast Baseline	YTD Actual	YTD Actual vs Forecast	Variance %	YTD Status
			Actual	Variance Actual vs Forecast	Variance %									
SSM	\$233,224	\$250,579	\$180,818	(\$69,761)	(28%)	Below Forecast		\$1,370,596	\$921,963	\$793,504	(\$128,459)	(14%)	Below Forecast	
DAM	\$72,845	\$108,500	\$143,037	\$34,537	32%	Above Forecast		\$465,822	\$656,267	\$726,600	\$70,333	11%	Above Forecast	
ERUC	\$72,845	\$107,050	\$85,545	(\$21,505)	(20%)	Below Forecast		\$465,822	\$530,088	\$479,841	(\$50,247)	(9%)	Below Forecast	
ICA	\$300,649	\$478,792	\$293,182	(\$185,610)	(39%)	Below Forecast		\$1,775,133	\$1,811,758	\$1,819,753	\$7,996	0%	Above Forecast	
General	\$392,847	\$452,625	\$345,020	(\$107,605)	(24%)	Below Forecast		\$2,328,335	\$2,432,572	\$2,174,832	(\$257,739)	(11%)	Below Forecast	
Total Program	\$1,072,411	\$1,397,546	\$1,047,602	(\$349,944)	(25%)	Below Forecast		\$6,405,706	\$6,352,647	\$5,994,530	(\$358,116)	(6%)	Below Forecast	

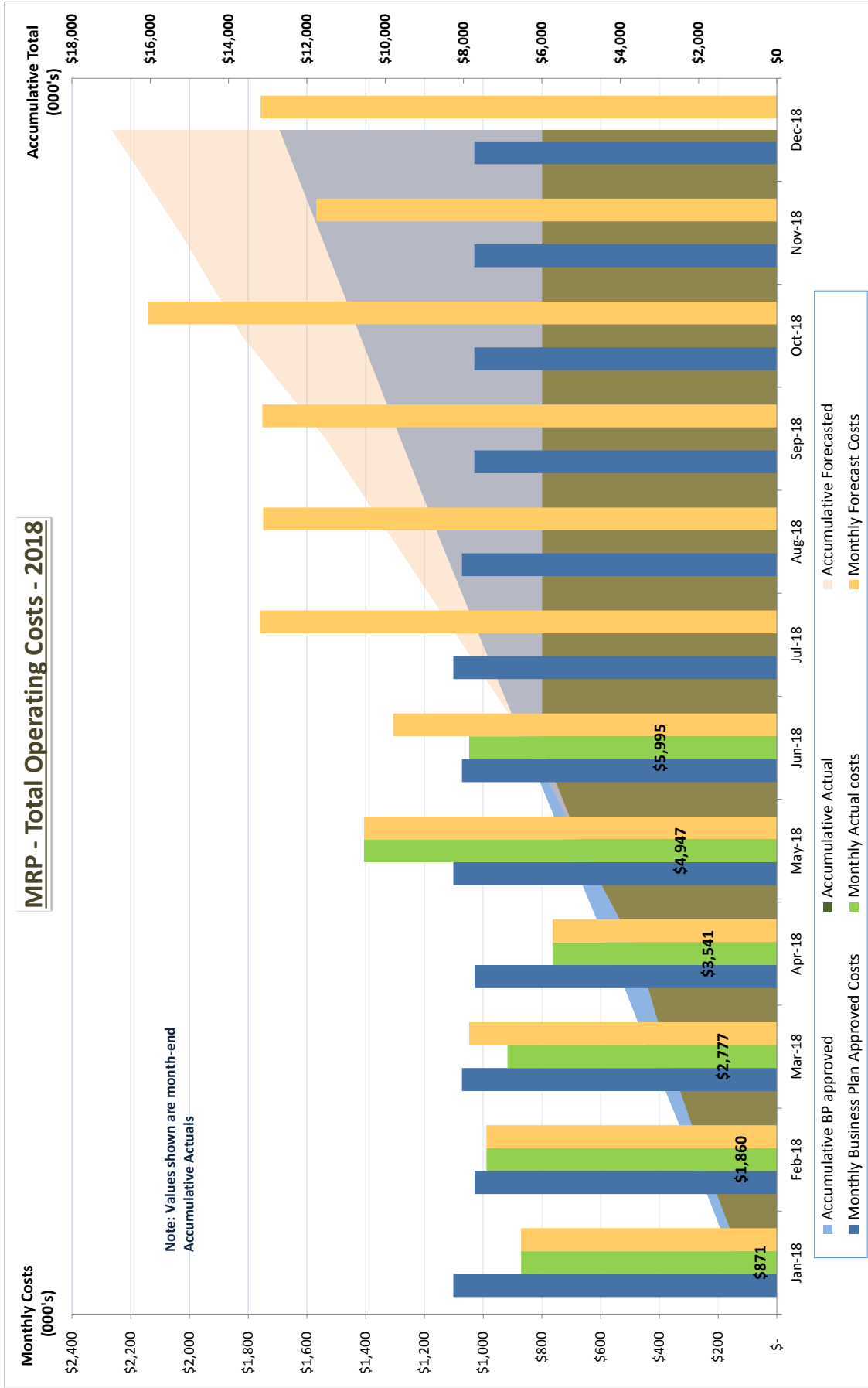


Notes:- The above graph reflects MRP actual cost allocation per projects and percentage.



Notes:- June's hours show a reduction over May as we return to a 4 week pay cycle in June versus the 6 weeks pay cycle in May.

Monthly Comparison - Project Actuals							
Project	Jan	Feb	Mar	Apr	May	June	YTD
SSM	69,769	88,106	83,920	151,393	219,498	180,818	793,504
DAM	105,936	112,941	92,211	87,294	185,181	143,037	726,600
ERUC	72,792	80,158	97,317	55,286	88,743	85,545	479,841
ICA	358,104	272,219	234,502	167,162	494,585	293,182	1,819,753
General	264,630	435,358	409,454	302,561	417,810	345,020	2,174,832
Total	871,230	988,782	917,404	763,695	1,405,818	1,047,602	5,994,530



Notes:- As illustrated above in July the forecasted costs will be higher than the approved budget costs, and will continue to increase as new resources are on-boarded.

MRP - Capital Financial Summary - 30-Jun-18

The capital costs approved under the 2018 Approved Business Plan is to capture the costs of detailed design work projected for 2018 as well as the costs for relocating the MRP team to our UMR location.

Variance Summary:

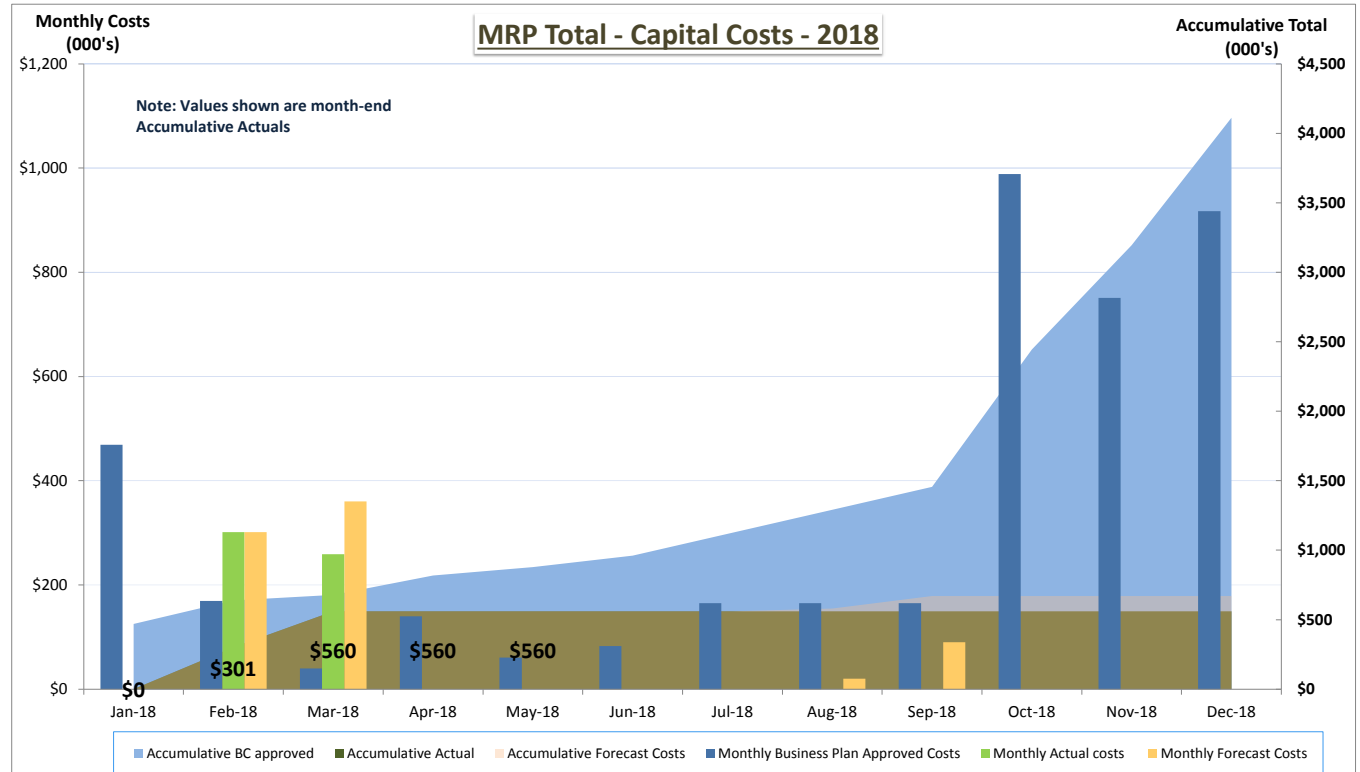
Capital Spend YTD reflects delay in delivery of AV Equipment for the meeting rooms at UMR. No change in Capital costs expected until AV Equipment is delivered and installed by end of Q3-2018 (TBC by IT).

Areas for Improvements:

The capital budget spend planned for Q4 2018 is now expected to be delayed to Q1 2019, as High Level Designs completion (DAM & ERUC) are now being projected for the end of Q4, ICA Q2 2019 and not in Q3 2018 as originally projected. SSM is on schedule to be completed by end of Q3 2018, and some costs may be able to be capitalized in Q4 2018.

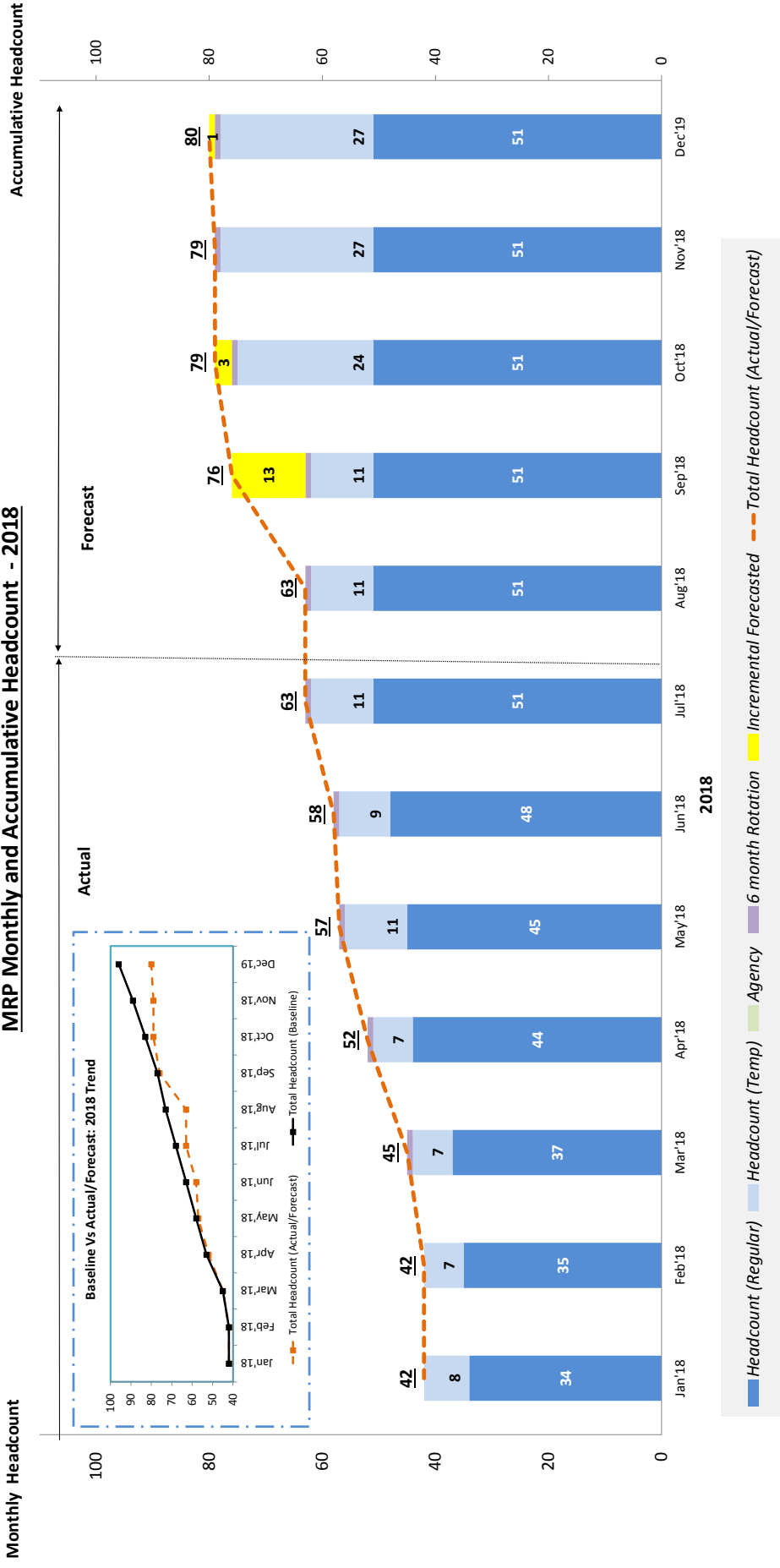
Overview of MRP Monthly Costs: 30-Jun-18

MRP Capital Costs								Year to Date					
Project Name	Business Plan Approved Costs	2018 Forecast Baseline	Actual	Variance Actual vs Forecast	Variance %	Status for 30-Jun-18	Comments	YTD Business Plan Approved Costs	YTD 2018 Forecast Baseline	YTD Actual	YTD Actual vs Forecast	Variance %	YTD Status
General - UMR	\$82,500	\$0	\$0	\$0		Below Forecast	Capital Spend YTD reflects delay in delivery of AV Equipment for the meeting rooms at UMR.	\$960,760	\$681,297	\$560,145	(\$121,152)	(18%)	Below Forecast
Total Program	\$82,500	\$0	\$0	\$0		Below Forecast		\$960,760	\$681,297	\$560,145	(\$121,152)	(18%)	Below Forecast



Notes:- The graph reflects the initial expectations stated in the approved business plan with capital budget of \$4M and with detailed designs beginning in Q4 2018. UMR Relocation is the only capital spend to date. Capital spend forecast has been revised to reflect the lag in detail designs, and may be further revised if some SSM Detailed Design work can be funded as capital expenditure in Q4.

MRP Monthly and Accumulative Headcount - 2018



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Program: MRP-Market Renewal Program

Project: Total MRP Program

Monthly Schedule Report for MRESC
June 30, 2018

Document Ref. No.: MRP_MSR04_18-06-30
(MSR ~ 04)

Project Commencement Reporting Date: Jan 1, 2018
Project Completion Reporting Date: Dec 31, 2018

Reporting Range Period	From <i>January 1, 2018</i>	<<<<<< >>>>>>	To <i>June 30, 2018</i>
------------------------	--------------------------------	---------------	----------------------------

For Week ending	<i>June 30, 2018</i>
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Reporting Date	<i>July 7, 2018</i>
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Program Schedule Status

Schedule Baseline	Cumulative Planned %	Cumulative Actual %	Variation %	Schedule Variance ⁽¹⁾
	45.8%	41.6%	(-4.1%)	Under Threshold

Month End Project Performance Status

Schedule Performance	Planned Value (PV)	Earned Value (EV)	Schedule Performance Index (SPI) ⁽²⁾	Schedule Status ⁽²⁾
	\$8,099,589	\$7,371,188	0.91	Behind Schedule

Cost Performance	Actual Cost (AC)	Earned Value (EV)	Cost Performance Index (CPI) ⁽³⁾	Budget Status ⁽³⁾
	\$5,995,529	\$7,371,188	1.23	Under Budget

Legend for Status:

(1). Threshold upper limit: assumption is -10%, If variation exceed (-10%) threshold limit schedule to be revised
 (2). Schedule: PMI defined as "Behind Schedule" SPI<1, if SPI>1 "Ahead of Schedule" or if SPI=1 "On Schedule"
 (3). Budget: PMI defined as "Under Budget" If CPI >1, if CPI <1 "Over Budget" or if CPI=1 "On Budget"
 Note: SPI & CPI will be calculated on Monthly Basis, above CPI value based on YTD actuals.

MARKET RENEWAL PROGRAM

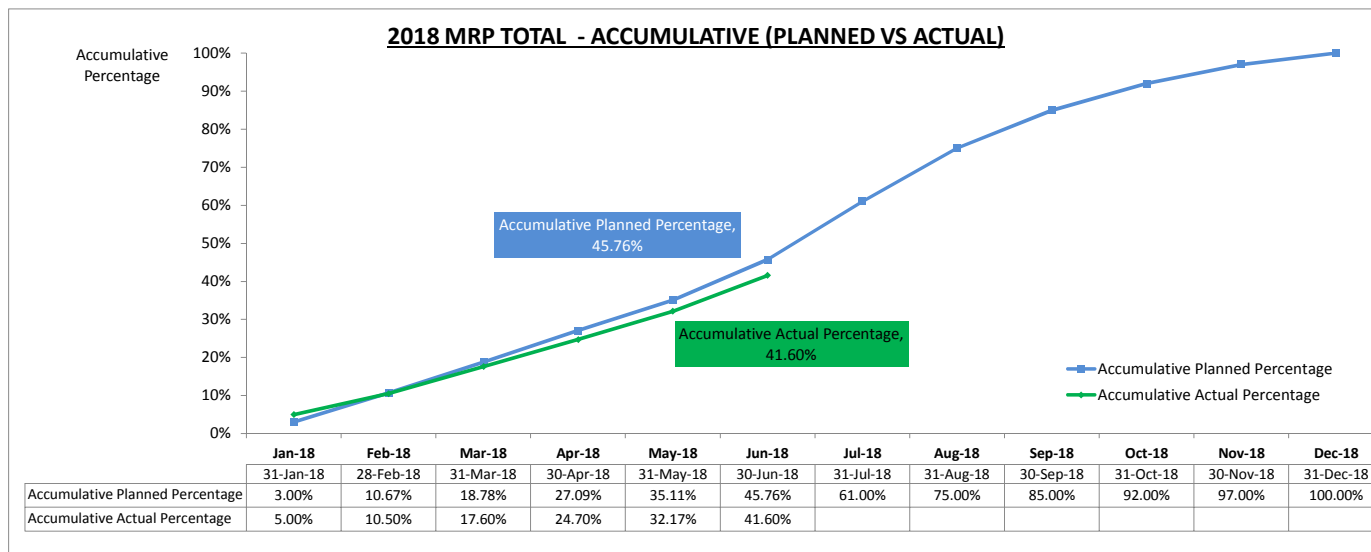


Project Progress and Performance Indicators

Monthly Status as of: 30-Jun-18

PROGRESS INDICATORS								
MRP	2018 Total Forecast at Completion (BAC) ⁽¹⁾	2018 Total Accumulated Actual Cost (AC)	Budget Equivalent weightage %	Planned Scheduled (start)	Planned Scheduled (finish)	Monthly scheduled Planned%	Monthly Schedule Actual Progress	(Weighted) Schedule % Completed
SSM	\$2,943,020	\$793,504	16.6%	01-Jan-18	31-Dec-18	54.20%	52.10%	8.7%
DAM	\$1,285,642	\$726,600	7.3%	01-Jan-18	31-Dec-18	38.96%	35.19%	2.6%
ERUC	\$1,156,763	\$479,841	6.5%	01-Jan-18	31-Dec-18	50.08%	44.34%	2.9%
ICA	\$6,069,638	\$1,819,753	34.3%	01-Jan-18	31-Dec-18	41.01%	31.92%	10.9%
GENERAL	\$6,244,937	\$2,175,832	35.3%	01-Jan-18	31-Dec-18	47.00%	47.00%	16.6%
MRP Total	\$17,700,000	\$5,995,529	100%					41.6%

PERFORMANCE INDICATORS			
Earned Value (EV) <small>(BAC X Monthly Scheduled Actual Progress)</small>	Planned Value (PV) <small>(BAC X Monthly Scheduled Planned %)</small>	CPI (EV/AC)	SPI (EV/PV)
\$1,533,313	\$1,595,117	1.93	0.96
\$452,417	\$500,886	0.62	0.90
\$512,909	\$579,307	1.07	0.89
\$1,937,428	\$2,489,159	1.06	0.78
\$2,935,120	\$2,935,120	1.35	1.00
\$7,371,188	\$8,099,589	1.23	0.91

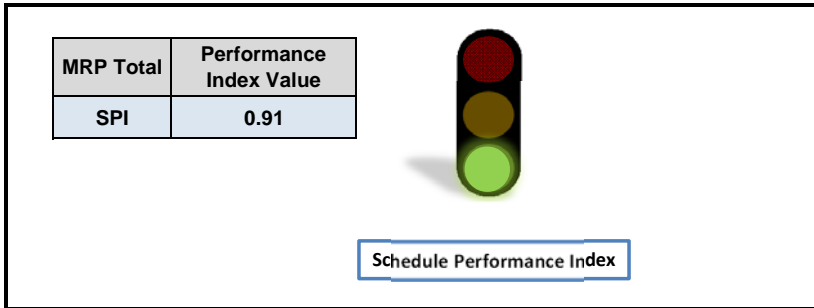


Notes (1) 2018 Forecast values and not Budget values will be used.
 (2) Overall Schedule Variance for MRP Total is -4%

MARKET RENEWAL PROGRAM

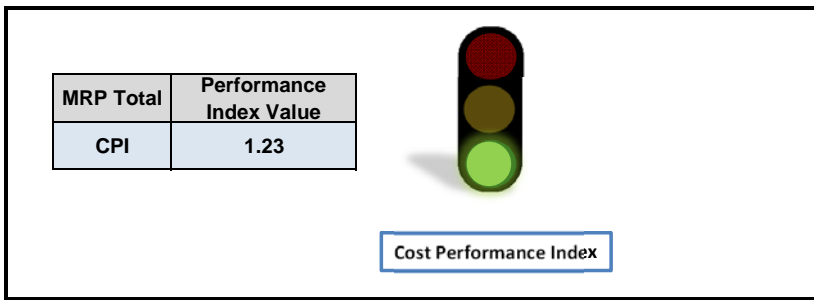
Project Progress and Performance Indicators

Monthly Performance Status: **30-Jun-18**

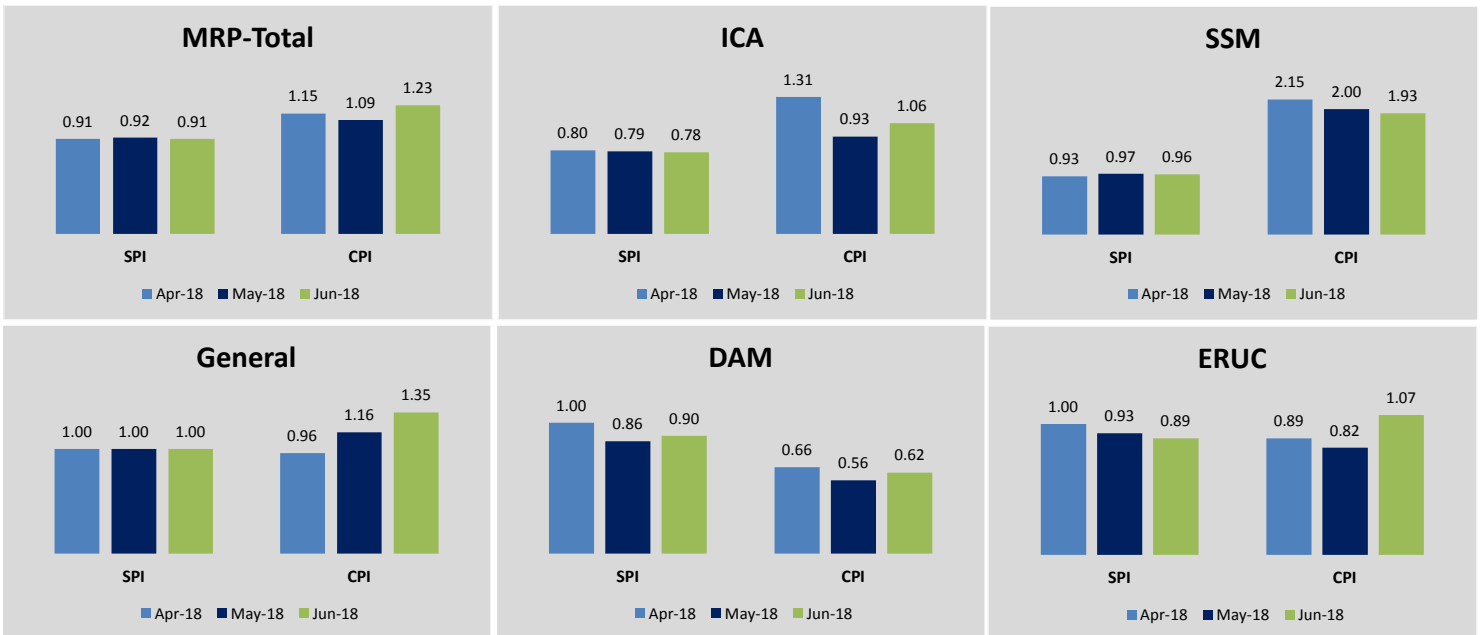


Threshold limits

Index	Red	Yellow	Green
SPI	<0.70	0.70 to 0.90	above 0.9
CPI	<0.80	0.80 to 0.90	above 0.9



Three Month Rolling Performance Comparison **30-Jun-18**



Note: The above graphs are based on actual progress calculated for ICA & SSM starting end of Feb. For ERUC and DAM, SPI and CPI are calculated from month end April, with an assumption of 1.0 index for the two previous months.

PMI Definitions:

CPI (Cost Performance Index)

The cost performance index (CPI) is a ratio that measures the financial effectiveness of a project by dividing the budgeted cost of work performed (BCWP or EV) by the actual cost of work performed (ACWP or AC). If the result is more than 1, then the project is under budget

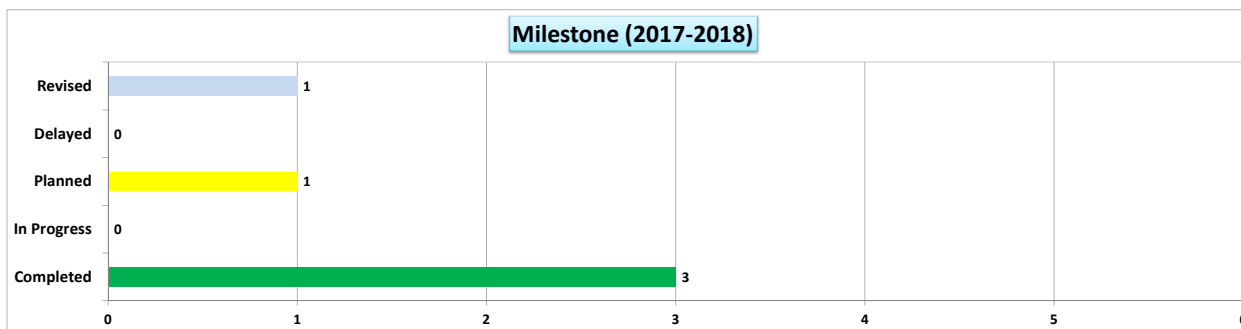
SPI (Schedule Performance Index)

Schedule performance index (SPI) is a ratio of the earned value (EV) to the planned value (PV). $SPI = EV \div PV$. If the SPI is less than one, it indicates that the project is potentially behind schedule to-date whereas an SPI greater than one, indicates the project is running ahead of schedule



SSM-Project Milestone Status 30-Jun-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	4-May-17	29-Jun-17	4-May-17	29-Jun-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	27-Jul-17	29-Mar-18	27-Jul-17	29-Mar-18	Completed	
3	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
4	Stakeholder Engagement- Design Decision	29-Mar-18	24-May-18	29-Mar-18		Revised	Material to be presented in July Session
5	High Level Design Document (External Publication)	28-Sep-18	28-Sep-18			Planned	



SSM-Design Elements Progress 30-Jun-18

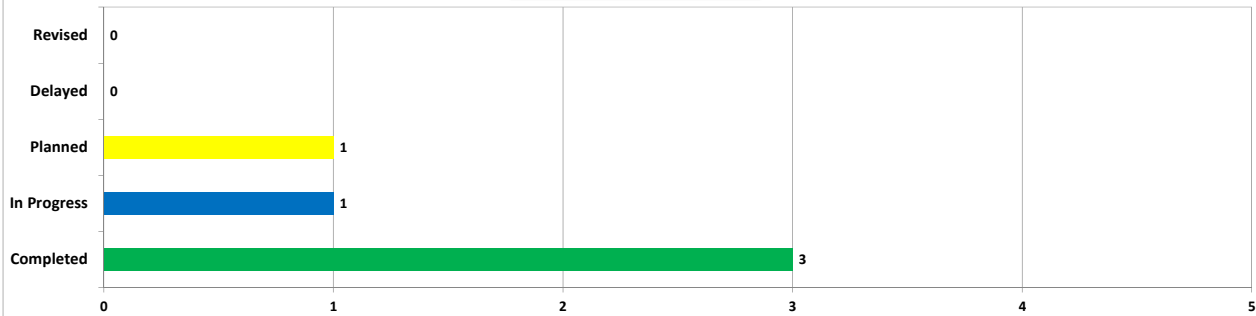
S.No	Design Element	Completion Stages	Stages Completed	STAGES										
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	Internal			External		
									6. Review 1	7. Review 2	8. Review 3	9. Review 4	10. Review 5 (Approval)	
1	DE 2: Energy Ref Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
2	DE 1: Energy Congestion Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
3	DE 3: Energy Ref Price loss Component	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
4	DE 6: Supplier Pricing	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
5	DE 7: Operating Reserve Reference Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
6	DE 8: Reserve Congestion Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
7	DE 11: Multi-interval optimization (MIO) pricing run and ramp rate Multiplier	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
8	DE4: Pre or Post interval pricing	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
9	DE 5: Intertie Congestion Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
10	DE 9: Resolving Constraint Violations	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
11	DE 12: Pricing setting Eligibility for Resources	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
12	DE 10: Out of Market Operator Actions	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
13	DE 18: Make Whole Payment	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
14	DE 19: Uplift Recovery	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
15	DE 13: Mitigation Process	10	5	Completed	Completed	Completed	Completed	Completed	In Progress					
16	DE 14: Timing of Application	10	4	Completed	Completed	In Progress	Completed	Completed	In Progress					
17	DE:15 Reference Levels	10	4	Completed	Completed	In Progress	Completed	Completed	In Progress					
18	DE 16: Pricing for Loads	10	3	Completed	Completed	Completed	In Progress	In Progress	In Progress					
19	DE 17: Congestion Rents & Loss residuals	10	3	Completed	Completed	Completed	In Progress	In Progress						



DAM-Project Milestone Status 30-Jun-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	4-May-17	29-Jun-17	4-May-17	29-Jun-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	27-Jul-17	29-Mar-18	27-Jul-17	29-Mar-18	Completed	
3	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
4	Stakeholder Engagement- Design Decision	29-Mar-18	19-Jul-18	29-Mar-18		In Progress	Material to be presented in July Session
5	High Level Design Document (External Publication)	21-Dec-18	21-Dec-18			Planned	

Milestone (2017-2018)



DAM-Design Elements Progress 30-Jun-18

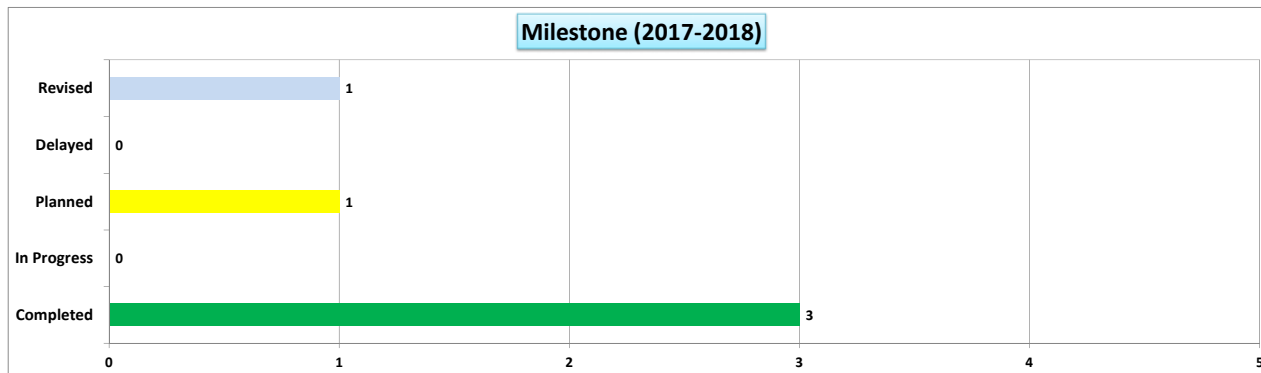
S.No	Design Element	Completion Stages	Stages Completed	STAGES												
									Internal			External				
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	6. Review 1	7. Review 2	8. Review 3	9. Review 4	10. Review 5 (Approval)			
1	DE 1: Reference Quantity (formerly must-offer Requirements)	10	4	Completed	Completed	Completed	Completed									
2	DE 4: Reliability Input Parameters	10	5	Completed	Completed	Completed	Completed	Completed								
3	DE 5: Virtual Transactions	10	1	Completed	Planned	In Progress										
4	DE 6: Functional Passes	10	5	Completed	Completed	Completed	Completed	Completed								
5	DE 7: Optimization Energy Limited Resources	10	4	Completed	Completed	Completed	Completed									
6	DE 8: Submission and Posting Deadlines	10	5	Completed	Completed	Completed	Completed	Completed								
7	DE 9: Initiation of Operational Commitments	10	5	Completed	Completed	Completed	Completed	Completed								
8	DE10: Market Power Mitigation	10	3	Completed	Completed	Completed	In Progress									
9	DE 11: Price Setting Eligibility	10	5	Completed	Completed	Completed	Completed	Completed								
10	DE 12: Reporting Obligations	10	4	Completed	Completed	Completed	Completed									
11	DE 13: Two Settlement for Load	10	4	Completed	Completed	Completed	Completed	In Progress								
12	DE 14: Two Settlement for Supply	10	4	Completed	Completed	Completed	Completed	In Progress								
13	DE 15: Make Whole Payments	10	4	Completed	Completed	Completed	Completed	In Progress								
14	DE 16: Uplift Recovery	10	4	Completed	Completed	Completed	Completed	In Progress								
15	DE 17: Financial Transmission Rights	10	4	Completed	Completed	Completed	Completed	In Progress								
16	DE 18: Market System Failures	10	1	Completed	Planned	In Progress										
17	DE 2: Load Participation	10	4	Completed	Completed	Completed	Completed	In Progress								
18	DE 3: Supply Participation: Variable Generation	10	4	Completed	Completed	Completed	Completed	In Progress								



ERUC-Project Milestone Status

30-Jun-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	4-May-17	29-Jun-17	4-May-17	29-Jun-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	27-Jul-17	29-Mar-18	27-Jul-17	29-Mar-18	Completed	
3	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
4	Stakeholder Engagement- Design Decision	29-Mar-18	24-May-18	29-Mar-18		Revised	Material to be presented in July Session
5	High Level Design Document (External Publication)	21-Dec-18	21-Dec-18			Planned	



ERUC-Design Elements Progress

30-Jun-18

S.No	Design Elements	Completion Stages	Stages Completed	STAGES													
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	6. Review 1	Internal		External		10. Review 5 (Approval)			
1	DE 1: Functional Passes	10	5	Completed	Completed	Completed	Completed	Completed									
2	DE 2: Look Ahead Period	10	5	Completed	Completed	Completed	Completed	Completed									
3	DE 3: Timing and Frequency of Run	10	5	Completed	Completed	Completed	Completed	Completed									
4	DE 4: Time Step	10	5	Completed	Completed	Completed	Completed	Completed									
5	DE 5: Intertie Transactions	10	4	Completed	Completed	Completed	Completed	In Progress									
6	DE 6: Must Offer Requirements	10	4	Completed	Completed	Completed	Completed	In Progress									
7	DE 7: Eligibility for Make-whole	10	5	Completed	Completed	Completed	Completed	Completed									
8	DE 8: Market Participant Data	10	5	Completed	Completed	Completed	Completed	Completed									
9	DE 9: Commitment Cost Mitigation	10	4	Completed	Completed	Completed	Completed	In Progress									
10	DE10: Offer Changes	10	4	Completed	Completed	Completed	Completed	In Progress									
11	DE 11: Binding Start-up Instruction and Operational Constraint	10	4	Completed	Completed	Completed	Completed	In Progress									
12	DE 12: Calculation of Make Whole Payment	10	4	Completed	Completed	Completed	Completed	In Progress									
13	DE 13: Failure Charge	10	4	Completed	Completed	Completed	Completed	In Progress									

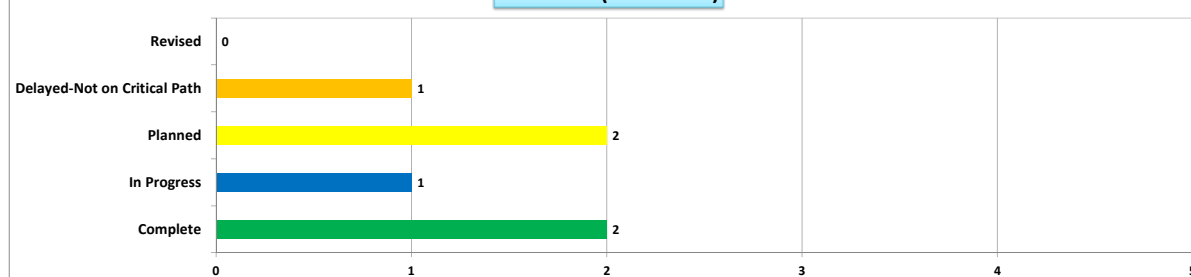


ICA-Project Milestone Status

30-Jun-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	18-May-17	20-Jul-17	18-May-17	20-Jul-17	Completed	
2	Stakeholder Engagement- Options & Recommendations	16-Aug-17	17-Apr-18	16-Aug-17		In Progress	
3	RFP for Auction Engine	1-Feb-18	3-Jul-18			Delayed-Not on Critical Path	RFI Completed, RFP Process reforecasted based on ICA priorities, Scheduled 2019
4	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
5	Stakeholder Engagement- Design Decision	2-Aug-18	17-Sep-18			Planned	
6	Publish HLD internal	3-Dec-18	31-Dec-18			Planned	

Milestone (2017-2018)



ICA-Design Elements Progress

30-Jun-18

S.No	Design Elements	Completion Stages	Stages Completed	STAGES								
									Internal	External	Internal	Approval
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	6. Review 1	7. Review 2	8. Review 3	9. Review 4
1	DE 1: Participation Requirement	9	4	Completed	Completed	Completed	Completed	In Progress				
2	DE 2: Resource Eligibility	9	4	Completed	Completed	Completed	Completed	In Progress				
3	DE 3: Qualified Capacity	9	4	Completed	Completed	Completed	Completed	In Progress				
4	DE 4: Market Power Mitigation	9	2	Completed	Completed							
5	DE 5: Length of forward Period	9	4	Completed	Completed	Completed	Completed	In Progress				
6	DE 6: Commitment Period	9	4	Completed	Completed	Completed	Completed	In Progress				
7	DE 7: Multi year Commitment	9	4	Completed	Completed	Completed	Completed	In Progress				
8	DE 8: Locational Considerations	9	4	Completed	Completed	Completed	Completed	In Progress				
9	DE 8: Locational Considerations-Part 2	9	4	Completed	Completed	Completed	Completed	In Progress				
10	DE 9: Slope of Demand Curve	9	3	Completed	Completed	Completed						
11	DE 9: Demand Curve Analysis	9	0	In Progress	Planned							
12	DE 10: Target Capacity	9	4	Completed	Completed	Completed	Completed	In Progress				
13	DE 11: Min/Max Capacity Limits	9	4	Completed	Completed	Completed	Completed	In Progress				
14	DE 12: Net Cost of New Entry	9	4	Completed	Completed	Completed	Completed	In Progress				
15	DE 13: Max auction Clearing Price	9	4	Completed	Completed	Completed	Completed	In Progress				
16	DE 14: Rebalancing Auctions	9	4	Completed	Completed	Completed	Completed	In Progress				
17	DE 15: Resource Obligations (within forward period)	9	4	Completed	Completed	Completed	Completed	In Progress				
18	DE 16: Non-performance Implications (within forward period)	9	4	Completed	Completed	Completed	Completed	In Progress				
19	DE 17: Resource performance Obligation	9	4	Completed	Completed	Completed	Completed	In Progress				
20	DE 18: Performance Assessment	9	4	Completed	Completed	Completed	Completed	In Progress				
21	DE 19: Cost Recovery	9	4	Completed	Completed	Completed	Completed	In Progress				

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Program: MRP-Market Renewal Program

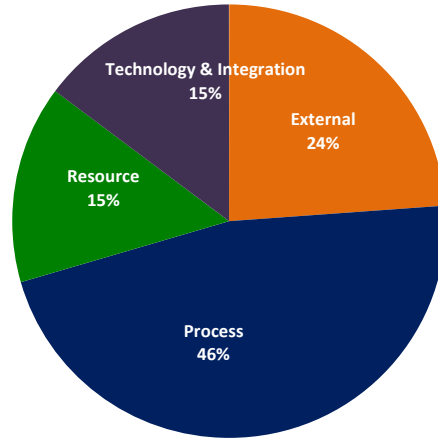
Monthly Risk Report For MRESC

June 30, 2018

Document Ref. No.: PRG_MRR01

Period: Month Ending: 30-Jun-18

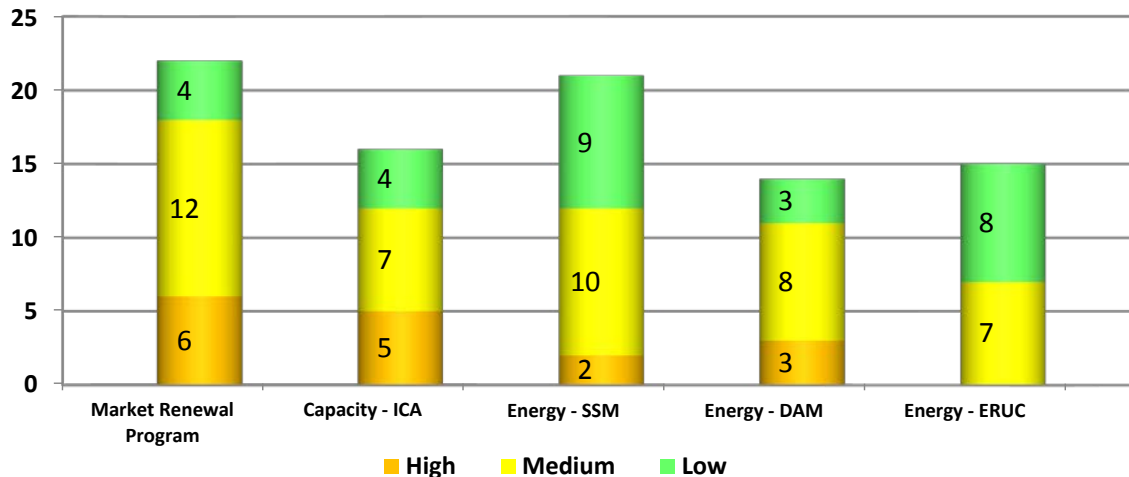
MRP - Total Residual Risk By Category



All program and project risks have been categorised into four categories, with the largest category of risks being categories as "Process" risks.

MRP - Total Residual Risk By Project

Number of Risks



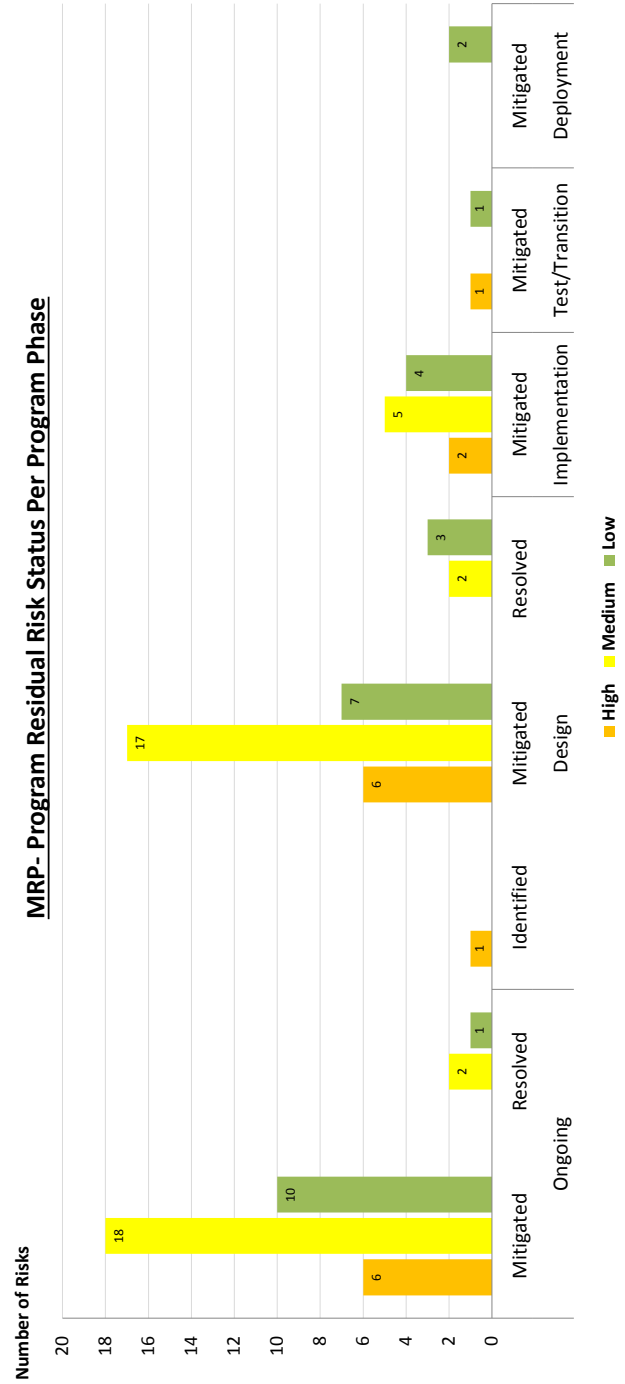
All MRP Risks have been divided into the four projects: SSM, DAM, ERUC and ICA, and Program risks. Each identified risk was assessed with the project team, and the document the risk response tasks that will be implemented proactively to prevent or at least reduce the level of the identified risk. In total we currently have 88 Risks

MRP RISK SUMMARY - MRESC as of June 30, 2018

TOP MRP CONTROLLABLE RISKS

Risk ID	Work Stream	Program Phase	Category	Description	Residual Risk Level	Response Tasks	Trend
MRP_R003	Market Renewal Program	Ongoing	Process	Critical interdependencies with other projects (e.g. CRS Replacement)	High	MRP Representation on dependent projects and representation on PSC. MRP leads and BA's to work with dependant projects to identify any impacts during design phase.	High
MRP_R005	Market Renewal Program	Ongoing	Process	Difficulty reaching agreement with internal stakeholders (Change Management).	High	Operations and IT Leads assigned to reduce the impact as they are representing their respective areas. Director's Forum is setup to facilitate these escalations. Final step for resolution is the MRESC	High
MRP_R015	Market Renewal Program	4.1 Implementation	Technology & Integration	Design decisions need to be revisited due to technical limitations	High	IT Lead and resources have been introduced early on the program to reduce the likelihood and impact of this occurring. Furthermore software vendors will be part of the HLD.	High
ICA_R019	Capacity - ICA	4.5 Test/Transition	Process	The need for parallel activities on timeline (e.g. market rules with market manuals at technical panel)	High	Start activities as early as possible.	High
DAM_R007	Energy - DAM	3.5 Design	Process	Contract negotiations fail to incent sufficient participation to achieve material price convergence between DAM & Real Time	High	Ensure full participants engaging/soliciting on design features to ensure design will incentivize (price certainty, overall lower cost, etc...)	High
DAM_R012	Energy - DAM	3.5 Design	Process	Contracted or rate-regulated participants may be resistive to DAM participation rules and two-settlement outcomes	High	Develop a strategic engagements plan with the SE team	High
ICA_R024	Capacity - ICA	3.5 Design	Process	Lack of clarity regarding division of accountability between ICA Team and line of business	High	Engage internal stakeholders regarding roles and responsibilities of line staff vs. the ICA Team	High
MRP_R022	Market Renewal Program	3.5 Design	Process	Business Case approvals - approval delays could cause release of Capital expenditure for Detail work on Energy and Capacity work streams	High	TBD	High

MRP- Program Residual Risk Status Per Program Phase



Updates on KPMG Risk Assessment
 KPMG Risk Assessment Project Kick off - completed on 18 June, and weekly status meeting updates in place. The first phase of the engagement is expected to be approximately five months, with a final presentation on findings to the Audit Committee and Board of Directors in December.
 Currently working on the following deliverables:
 1. Commence Reviewing the Enterprise Risk Management Framework (ERM), Methods and Reports.
 2. Commence drafting a training outline to be presented to the Program Management Team regarding ERM risk assessment and project management fundamental.
 3. Discuss with PMO team risk methodology and application in organization.
 4. Confirming the Project Plan timelines



Program: MRP-Market Renewal Program

Monthly Cost Report for MRESC
August 14, 2018

Document Ref. No.: PRG_MCR07

**Period: Month Ending
31-Jul-18**

Program Cost Summary:				
	2017 ⁽¹⁾		2018 ⁽¹⁾	
	Operating	Capital	Operating	Capital
<i>Business Plan Approved Costs</i>	9,247		12,700	4,000
<i>Contingency</i>	2,760			
Business Plan with Contingency	12,007		12,700	4,000
<i>Forecast</i>	7,972			
<i>2018 Forecast Baseline (end Q1-2018)</i>			17,700	550
<i>2018 Forecast Rolling ⁽²⁾</i>			14,772	1,496
<i>Contingency ⁽³⁾</i>				90
Forecast with Contingency	7,972		14,772	1,586
<i>Variance (2018 Rolling vs Baseline Forecast)</i>			-2,928	1,036
<i>Actual Costs ⁽⁴⁾</i>	7,902	201	7,082	599
<i>Contingency</i>				
Actual with Contingency	7,902	201	7,082	599

Notes:

- (1) Report in thousands (000's).
- (2) Includes Q4 Capital Forecast for SSM.
- (3) No contingency for 2018 operating forecasted costs.
- (4) Actual costs for 2018 are YTD.

Prepared by: MRP Cost Controller

MRP - Operating Financial Summary - 31-Jul-18

The Business Plan Approved Costs for MRP have been divided into the four projects: SSM, DAM, ERUC, and ICA, as well as a general account for tracking costs associated with Program related activities. Each project has been forecasted to reflect the cost expectations for 2018. The actual costs will be tracked against the 2018 baseline forecast.

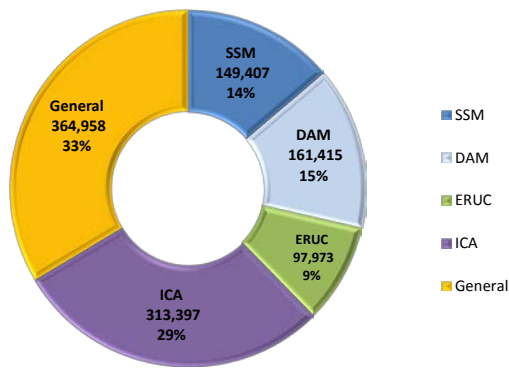
Variance Summary:

MRP spend for July is 34% below the baseline forecast with the actual spend for The Brattle Group being much lower than expected for both ICA & NERSC.

Overview of MRP Monthly Costs: 31-Jul-18

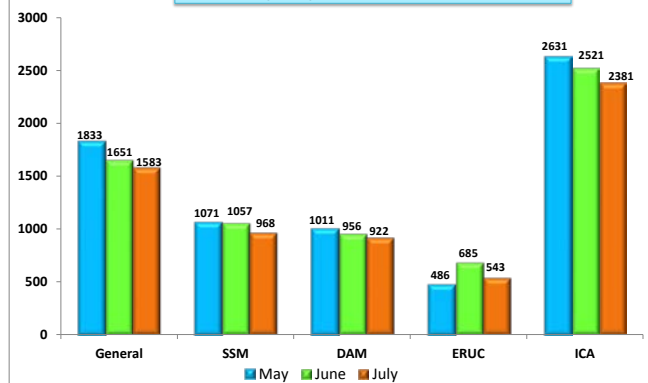
MRP Operating Costs								Year to Date					
Project Name	Business Plan Approved Costs	Monthly						YTD Business Plan Approved Costs	YTD 2018 Forecast Baseline	YTD Actual	YTD Actual vs Forecast	YTD Variance %	YTD Status
		2018 Forecast Baseline	Actual	Variance Actual vs Forecast	Variance %	Status for 31-Jul-18	Comments						
SSM	\$233,224	\$250,579	\$149,407	(\$101,172)	(40%)	Below Forecast		\$1,603,820	\$1,172,541	\$942,911	(\$229,630)	(20%)	Below Forecast
DAM	\$87,220	\$116,875	\$161,415	\$44,540	38%	Above Forecast		\$553,042	\$773,142	\$888,015	\$114,873	15%	Above Forecast
ERUC	\$87,220	\$116,425	\$97,973	(\$18,452)	(16%)	Below Forecast		\$553,042	\$646,513	\$577,814	(\$68,699)	(11%)	Below Forecast
ICA	\$300,649	\$565,792	\$313,397	(\$252,395)	(45%)	Below Forecast		\$2,075,782	\$2,532,550	\$2,133,150	(\$399,399)	(16%)	Below Forecast
General	\$392,847	\$602,880	\$364,958	(\$237,922)	(39%)	Below Forecast		\$2,721,182	\$3,035,452	\$2,539,790	(\$495,662)	(16%)	Below Forecast
Total Program	\$1,101,161	\$1,652,551	\$1,087,150	(\$565,401)	(34%)	Below Forecast		\$7,506,867	\$8,160,198	\$7,081,680	(\$1,078,517)	(13%)	Below Forecast

Monthly Actual Costs by Project



Notes:- The above graph reflects MRP actual cost allocation per projects and percentage. The cost split for July is relatively even among the three workstreams - General 34%, Capacity 29% & Energy 37%.

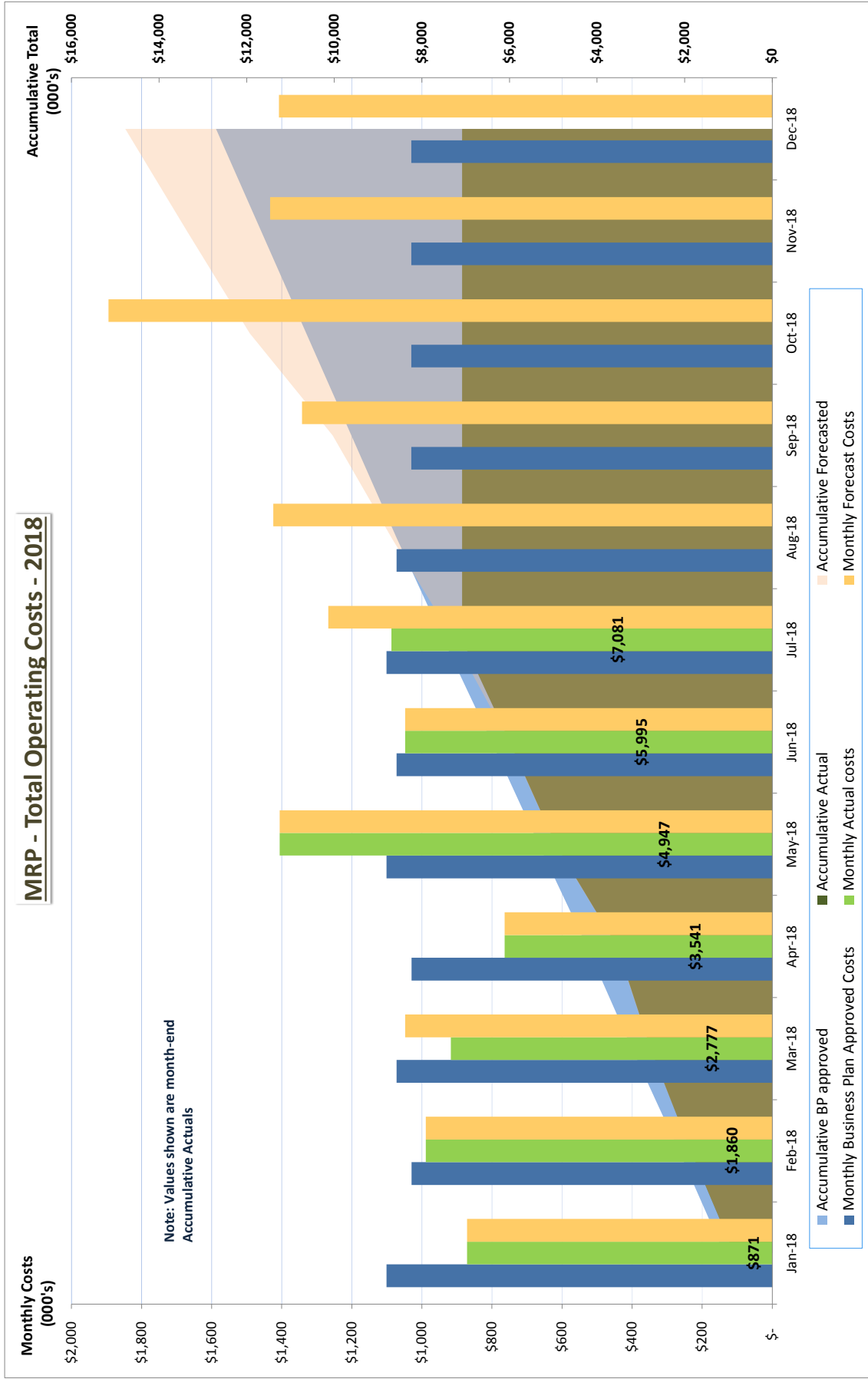
MRP Monthly Comparison of IESO Internal Labour Hours



Notes:- July's hours show a reduction over June the summer vacation period impacts the program.

MRP Monthly Comparison - 2018 Operating Actuals

Project	Jan	Feb	Mar	Apr	May	June	July	YTD
SSM	69,769	88,106	83,920	151,393	219,498	180,818	149,407	942,911
DAM	105,936	112,941	92,211	87,294	185,181	143,037	161,415	888,015
ERUC	72,792	80,158	97,317	55,286	88,743	85,545	97,973	577,814
ICA	358,104	272,219	234,502	167,162	494,585	293,182	313,397	2,133,150
General	264,630	435,358	409,454	302,561	417,810	345,020	364,958	2,539,790
Total	871,230	988,782	917,404	763,695	1,405,818	1,047,602	1,087,150	7,081,680



Notes:- As illustrated above starting July the forecasted costs will be higher than the approved budget costs, and will continue to increase as new resources are on-boarded.

MRP - Capital Financial Summary - 31-Jul-18

The capital costs approved under the 2018 Approved Business Plan is to capture the costs of detailed design work projected for 2018 as well as the costs for relocating the MRP team to our UMR location.

Variance Summary:

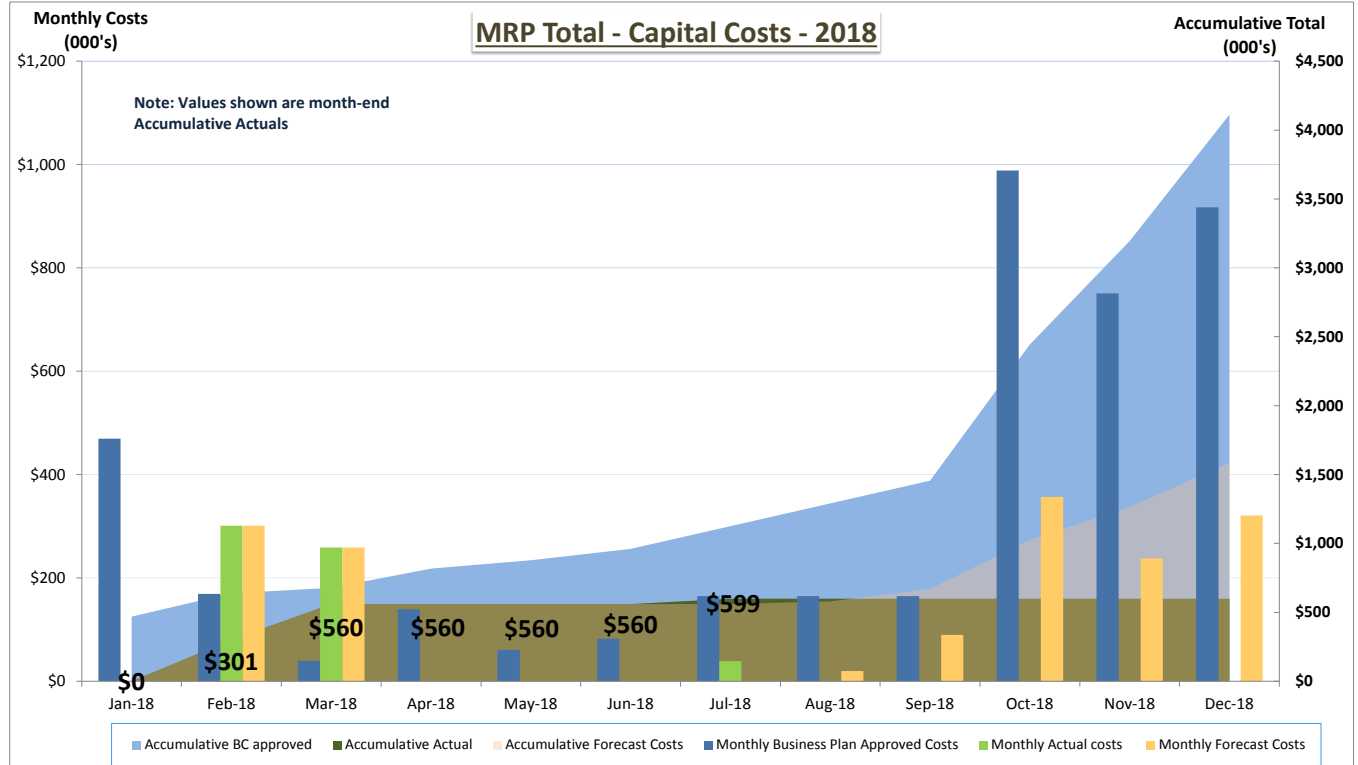
Capital Spend YTD reflects delay in delivery of AV Equipment for the meeting rooms at UMR. For July there was \$39,022 paid for tenant improvements for work performed in February; no other change in Capital costs is expected until AV Equipment is delivered and installed by end of Q3-2018 (TBC by IT).

Areas for Improvements:

The capital budget spend planned for Q4 2018 is now expected to be delayed to Q1 2019, as High Level Designs completion (DAM & ERUC) are now being projected for the end of Q4, ICA Q2 2019 and not in Q3 2018 as originally projected. SSM is on schedule to be completed by end of Q3 2018, and some costs may be able to be capitalized in Q4 2018.

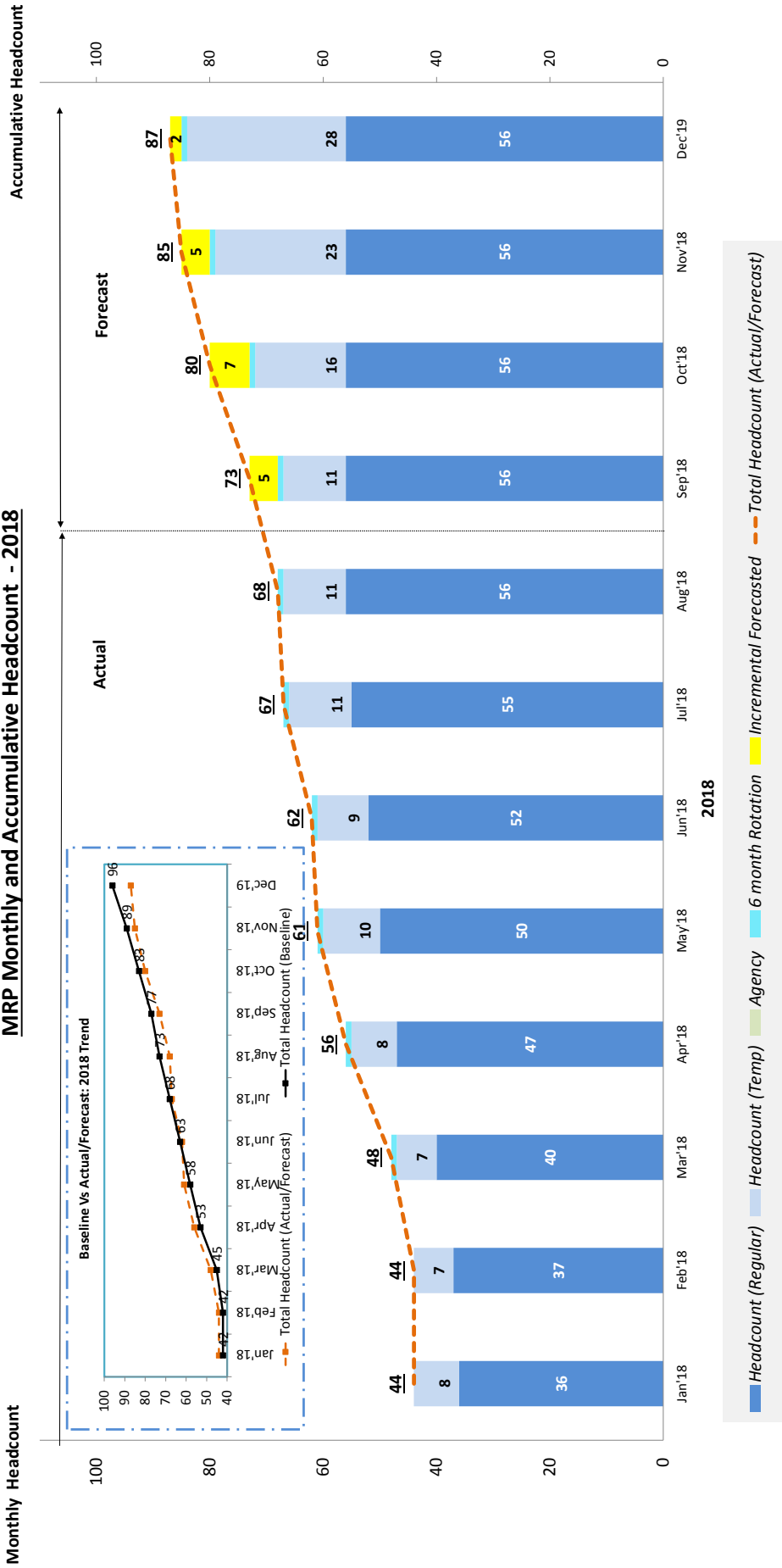
Overview of MRP Monthly Costs: 31-Jul-18

MRP Capital Costs								Year to Date					
Project Name	Business Plan Approved Costs	2018 Forecast Baseline	Actual	Variance Actual vs Forecast	Variance %	Status for 31-Jul-18	Comments	YTD Business Plan Approved Costs	YTD 2018 Forecast Baseline	YTD Actual	YTD Actual vs Forecast	Variance %	YTD Status
								General - UMR	\$165,000	\$90,000	\$39,022	(\$50,978)	(57%)
Total Program	\$165,000	\$90,000	\$39,022	(\$50,978)	(57%)	Below Forecast		\$960,760	\$771,297	\$599,167	(\$172,130)	(22%)	Below Forecast



Notes:- The graph reflects the initial expectations stated in the approved business plan with capital budget of \$4M and with detailed designs beginning in Q4 2018. UMR Relocation is the only capital spend to date. Capital spend forecast has been revised to reflect the lag in detail designs, as well as the SSM Detailed Design work projected to be funded as capital expenditure in Q4.

MRP Monthly and Accumulative Headcount - 2018



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Program: MRP-Market Renewal Program

Project: Total MRP Program

Monthly Schedule Report for MRESC
July 31, 2018

Document Ref. No.: MRP_MSR05_18-07-31
(MSR ~ 05)

Project Commencement Reporting Date: Jan 1, 2018
Project Completion Reporting Date: Dec 31, 2018

Reporting Range Period	From <i>January 1, 2018</i>	<<<<<< >>>>>>	To <i>July 31, 2018</i>
------------------------	--------------------------------	------------------------------------	----------------------------

For Week ending	<i>July 31, 2018</i>
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Reporting Date	<i>August 7, 2018</i>
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Program Schedule Status

Schedule Baseline	Cumulative Planned %	Cumulative Actual %	Variation %	Schedule Variance ⁽¹⁾
	58.7%	53.7%	(-5.0%)	Under Threshold

Month End Project Performance Status

Schedule Performance	Planned Value (PV)	Earned Value (EV)	Schedule Performance Index (SPI) ⁽²⁾	Schedule Status ⁽²⁾
	\$10,386,573	\$9,504,709	0.92	Behind Schedule

Cost Performance	Actual Cost (AC)	Earned Value (EV)	Cost Performance Index (CPI) ⁽³⁾	Budget Status ⁽³⁾
	\$7,077,363	\$9,504,709	1.34	Under Budget

Legend for Status:

(1). Threshold upper limit: assumption is -10%, If variation exceed (-10%) threshold limit schedule to be revised
 (2). Schedule: PMI defined as "Behind Schedule" SPI<1, if SPI>1 "Ahead of Schedule" or if SPI=1 "On Schedule"
 (3). Budget: PMI defined as "Under Budget" If CPI >1, if CPI <1 "Over Budget" or if CPI=1 "On Budget"
 Note: SPI & CPI will be calculated on Monthly Basis, above CPI value based on YTD actuals.

Prepared by: MRP Project Scheduler

MARKET RENEWAL PROGRAM

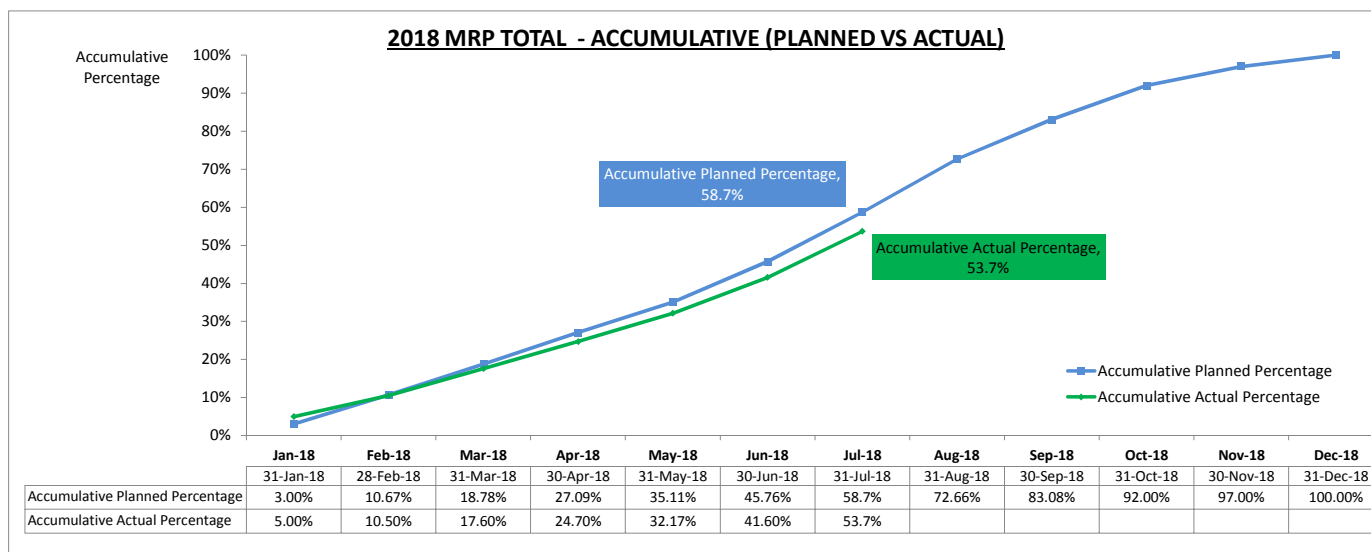


Project Progress and Performance Indicators

Monthly Status as of: 31-Jul-18

PROGRESS INDICATORS								
MRP	2018 Total Forecast at Completion (BAC) ⁽¹⁾	2018 Total Accumulated Actual Cost (AC)	Budget Equivalent weightage %	Planned Scheduled (start)	Planned Scheduled (finish)	Monthly scheduled Planned%	Monthly Schedule Actual Progress	(Weighted) Schedule % Completed
SSM	\$2,943,020	\$945,536	16.6%	01-Jan-18	31-Dec-18	61.30%	56.28%	9.4%
DAM	\$1,285,642	\$874,385	7.3%	01-Jan-18	31-Dec-18	54.07%	47.06%	3.4%
ERUC	\$1,156,763	\$577,814	6.5%	01-Jan-18	31-Dec-18	60.74%	54.39%	3.6%
ICA	\$6,069,638	\$2,136,968	34.3%	01-Jan-18	31-Dec-18	55.61%	46.21%	15.8%
GENERAL	\$6,244,937	\$2,542,660	35.3%	01-Jan-18	31-Dec-18	61.00%	61.00%	21.5%
MRP Total	\$17,700,000	\$7,077,363	100%					
						58.7%		53.7%

PERFORMANCE INDICATORS			
Earned Value (EV) <small>(BAC X Monthly Scheduled Actual Progress)</small>	Planned Value (PV) <small>(BAC X Monthly Scheduled Planned %)</small>	CPI (EV/AC)	SPI (EV/PV)
\$1,656,332	\$1,804,071	1.75	0.92
\$605,023	\$695,147	0.69	0.87
\$629,163	\$702,618	1.09	0.90
\$2,804,780	\$3,375,326	1.31	0.83
\$3,809,412	\$3,809,412	1.50	1.00
\$9,504,709	\$10,386,573	1.34	0.92

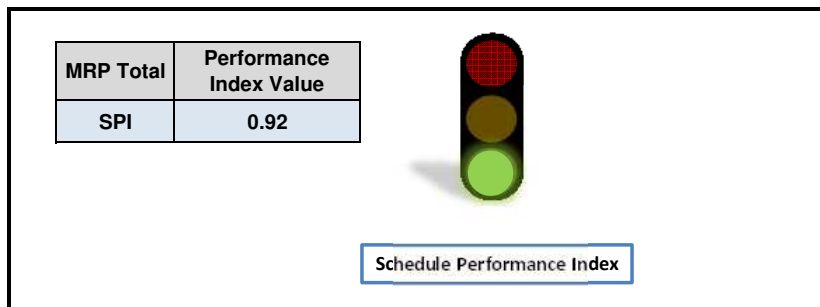


Notes
 (1) 2018 Forecast values and not Budget values will be used.
 (2) Overall Schedule Variance for MRP Total is -5%

MARKET RENEWAL PROGRAM

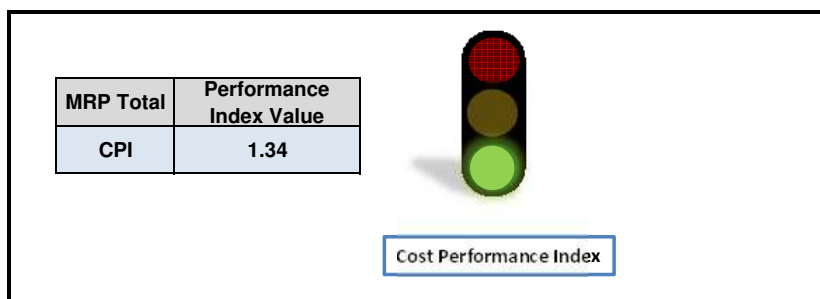
Project Progress and Performance Indicators

Monthly Performance Status: 31-Jul-18

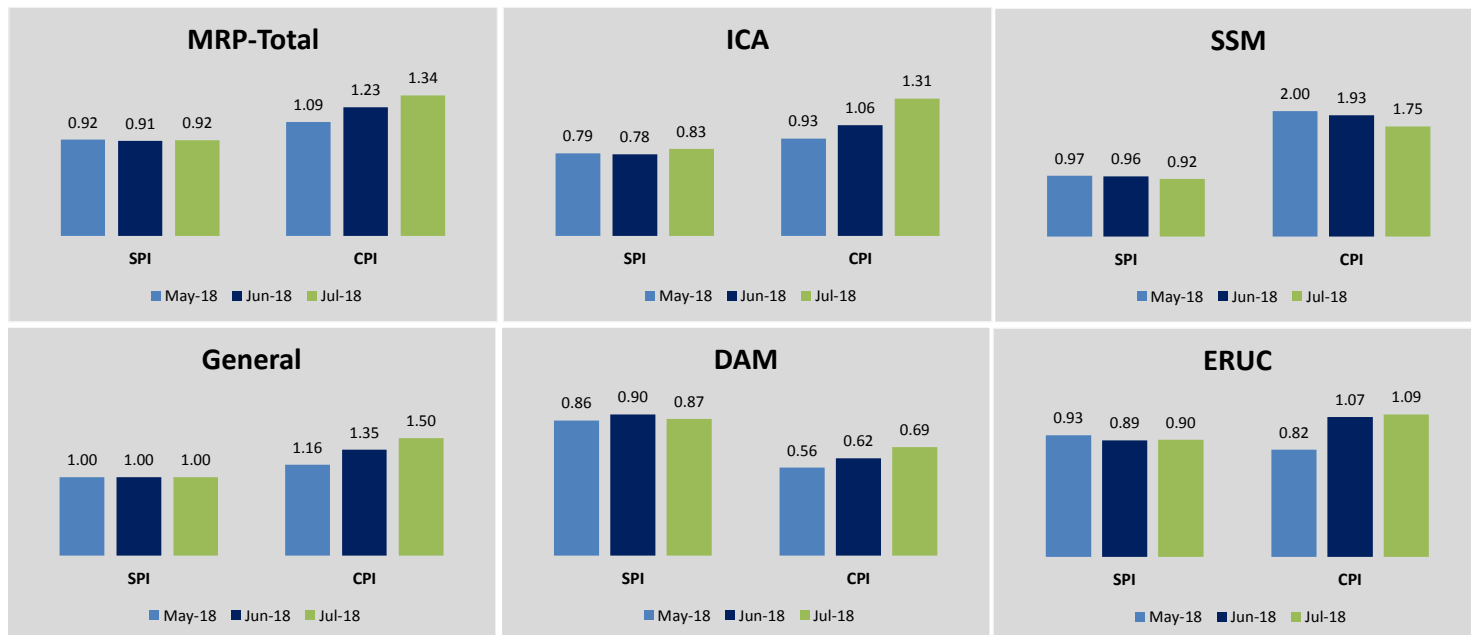


Threshold limits

Index	Red	Yellow	Green
SPI	<0.70	0.70 to 0.90	above 0.9
CPI	<0.80	0.80 to 0.90	above 0.9



Three Month Rolling Performance Comparison 31-Jul-18



Note: For MRP Total Performance indices over the last three months, SPI remained steady at around 0.92 and CPI continued to trend upwards to remain under budget.

PMI Definitions:

CPI (Cost Performance Index)

The cost performance index (CPI) is a ratio that measures the financial effectiveness of a project by dividing the budgeted cost of work performed (BCWP or EV) by the actual cost of work performed (ACWP or AC). If the result is more than 1, then the project is under budget

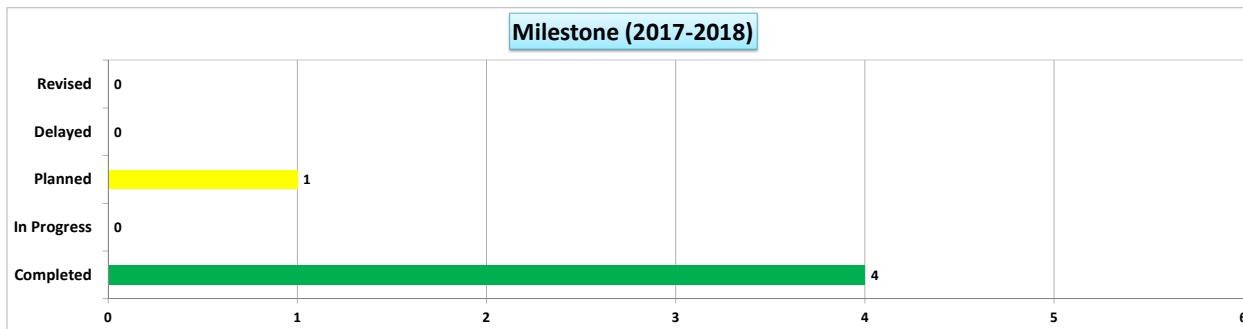
SPI (Schedule Performance Index)

Schedule performance index (SPI) is a ratio of the earned value (EV) to the planned value (PV). $SPI = EV \div PV$. If the SPI is less than one, it indicates that the project is potentially behind schedule to-date whereas an SPI greater than one, indicates the project is running ahead of schedule



SSM-Project Milestone Status 31-Jul-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	4-May-17	29-Jun-17	4-May-17	29-Jun-17	Completed	
2	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
3	Stakeholder Engagement- Options & Recommendations	27-Jul-17	29-Mar-18	27-Jul-17	29-Mar-18	Completed	
4	Stakeholder Engagement- Design Decision- Presented	29-Mar-18	24-May-18	29-Mar-18	19-Jul-18	Completed	
5	High Level Design Document (External Publication)	28-Sep-18	28-Sep-18			Planned	



SSM-Design Elements Progress 31-Jul-18

S.No	Design Element	Completion Stages	Stages Completed	STAGES										
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	Internal			External		
									6. Review 1	7. Review 2	8. Review 3	9. Review 4	10. Review 5 (Approval)	
1	DE 2: Energy Ref Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
2	DE 1: Energy Congestion Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
3	DE 3: Energy Ref Price loss Component	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
4	DE 6: Supplier Pricing	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
5	DE 7: Operating Reserve Reference Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
6	DE 8: Reserve Congestion Price	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
7	DE 11: Multi-interval optimization (MIO) pricing run and ramp rate Multiplier	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
8	DE4: Pre or Post interval pricing	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
9	DE 5: Intertie Congestion Price	10	5	Completed	Completed	Completed	Completed	Completed	In Progress					
10	DE 9: Resolving Constraint Violations	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
11	DE 12: Pricing setting Eligibility for Resources	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
12	DE 10: Out of Market Operator Actions	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
13	DE 18: Make Whole Payment	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
14	DE 19: Uplift Recovery	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
15	DE 13: Mitigation Process	10	5	Completed	Completed	Completed	Completed	Completed	In Progress					
16	DE 14: Timing of Application	10	4	Completed	Completed	In Progress	Completed	Completed	In Progress					
17	DE:15 Reference Levels	10	4	Completed	Completed	In Progress	Completed	Completed	In Progress					
18	DE 16: Pricing for Loads	10	3	Completed	Completed	Completed	In Progress	In Progress	In Progress					
19	DE 17: Congestion Rents & Loss residuals	10	3	Completed	Completed	Completed	In Progress	In Progress	In Progress					

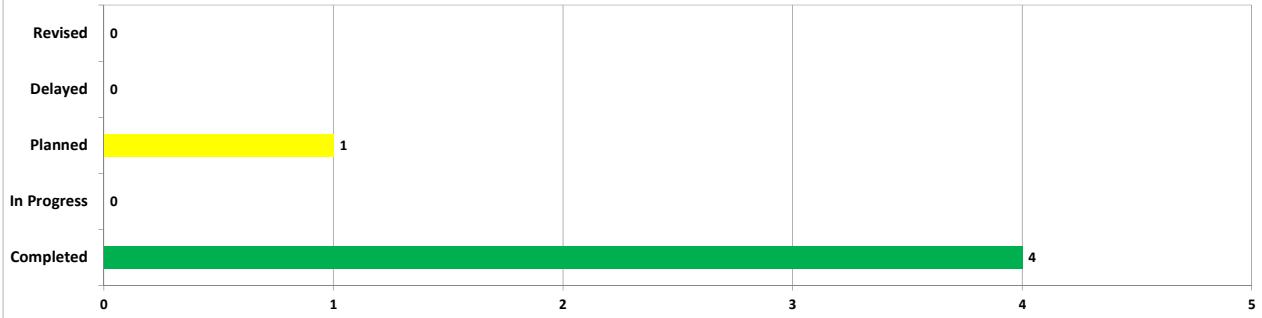
- Notes:
- Review 1 : Includes internal review of all design elements in three different parts
 - Review 2 : Internal review of HLD (all three parts combined)
 - Review 3 : Publish HLD to external stakeholders
 - Review 4: Incorporate comments on HLD from external Stakeholders
 - Review 5: HLD Approval



DAM-Project Milestone Status 31-Jul-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	4-May-17	29-Jun-17	4-May-17	29-Jun-17	Completed	
2	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
3	Stakeholder Engagement- Options & Recommendations	27-Jul-17	29-Mar-18	27-Jul-17	29-Mar-18	Completed	
4	Stakeholder Engagement- Design Decision Presented	29-Mar-18	19-Jul-18	29-Mar-18	19-Jul-18	Completed	
5	High Level Design Document (External Publication)	21-Dec-18	21-Dec-18			Planned	

Milestone (2017-2018)



DAM-Design Elements Progress 31-Jul-18

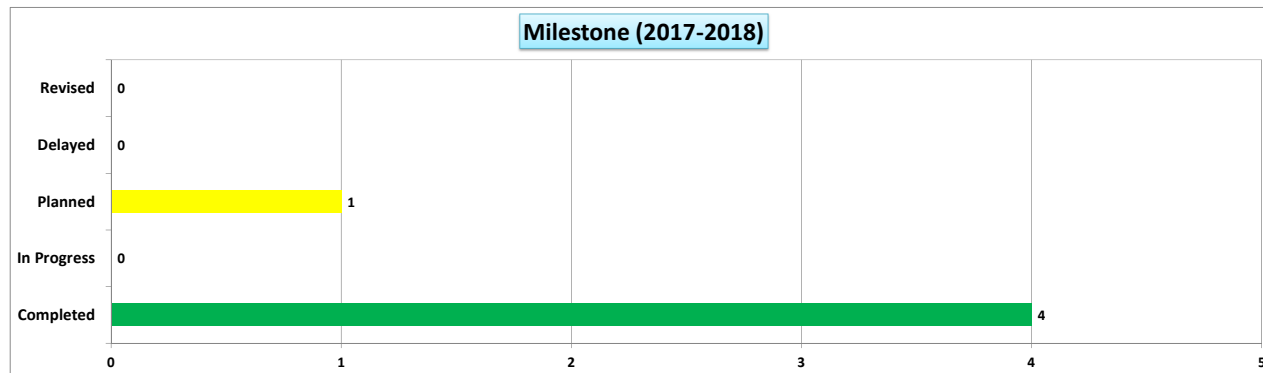
S.No	Design Element	Completion Stages	Stages Completed	STAGES													
				Internal					External								
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	6. Review 1	7. Review 2	8. Review 3	9. Review 4	10. Review 5 (Approval)				
1	DE 1: Reference Quantity (formerly must-offer Requirements)	10	4	Completed	Completed	Completed	Completed										
2	DE 4: Reliability Input Parameters	10	5	Completed	Completed	Completed	Completed	Completed									
3	DE 5: Virtual Transactions	10	6	Completed	Completed	Completed	Completed	Completed	Completed								
4	DE 6: Functional Passes	10	6	Completed	Completed	Completed	Completed	Completed	Completed								
5	DE 7: Optimization Energy Limited Resources	10	4	Completed	Completed	Completed	Completed										
6	DE 8: Submission and Posting Deadlines	10	6	Completed	Completed	Completed	Completed	Completed	Completed								
7	DE 9: Initiation of Operational Commitments	10	6	Completed	Completed	Completed	Completed	Completed	Completed								
8	DE10: Market Power Mitigation	10	3	Completed	Completed	Completed	In Progress										
9	DE 11: Price Setting Eligibility	10	5	Completed	Completed	Completed	Completed	Completed									
10	DE 12: Reporting Obligations	10	4	Completed	Completed	Completed	Completed	In Progress									
11	DE 13: Two Settlement for Load	10	4	Completed	Completed	Completed	Completed	In Progress									
12	DE 14: Two Settlement for Supply	10	4	Completed	Completed	Completed	Completed	In Progress									
13	DE 15: Make Whole Payments	10	4	Completed	Completed	Completed	Completed	In Progress									
14	DE 16: Uplift Recovery	10	4	Completed	Completed	Completed	Completed	In Progress									
15	DE 17: Financial Transmission Rights	10	4	Completed	Completed	Completed	Completed	In Progress									
16	DE 18: Market System Failures	10	2	Completed	Completed	In Progress	In Progress										
17	DE 2: Load Participation	10	4	Completed	Completed	Completed	Completed	In Progress									
18	DE 3: Supply Participation: Variable Generation	10	4	Completed	Completed	Completed	Completed	In Progress									



ERUC-Project Milestone Status

31-Jul-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	4-May-17	29-Jun-17	4-May-17	29-Jun-17	Completed	
2	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
3	Stakeholder Engagement- Options & Recommendations	27-Jul-17	29-Mar-18	27-Jul-17	29-Mar-18	Completed	
4	Stakeholder Engagement- Design Decision Presented	29-Mar-18	24-May-18	29-Mar-18	19-Jul-18	Completed	
5	High Level Design Document (External Publication)	21-Dec-18	21-Dec-18			Planned	



ERUC-Design Elements Progress

31-Jul-18

S.No	Design Elements	Completion Stages	Stages Completed	STAGES										
				Internal						External				
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	6. Review 1	7. Review 2	8. Review 3	9. Review 4	10. Review 5 (Approval)	
1	DE 1: Functional Passes	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
2	DE 2: Look Ahead Period	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
3	DE 3: Timing and Frequency of Run	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
4	DE 4: Time Step	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
5	DE 5: Intertie Transactions	10	4	Completed	Completed	Completed	Completed	In Progress						
6	DE 6: Must Offer Requirements	10	4	Completed	Completed	Completed	Completed	In Progress						
7	DE 7: Eligibility for Make-whole	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
8	DE 8: Market Participant Data	10	6	Completed	Completed	Completed	Completed	Completed	Completed					
9	DE 9: Commitment Cost Mitigation	10	4	Completed	Completed	Completed	Completed	In Progress						
10	DE10: Offer Changes	10	4	Completed	Completed	Completed	Completed	In Progress						
11	DE 11: Binding Start-up Instruction and Operational Constraint	10	4	Completed	Completed	Completed	Completed	In Progress						
12	DE 12: Calculation of Make Whole Payment	10	4	Completed	Completed	Completed	Completed	In Progress						
13	DE 13: Failure Charge	10	4	Completed	Completed	Completed	Completed	In Progress						

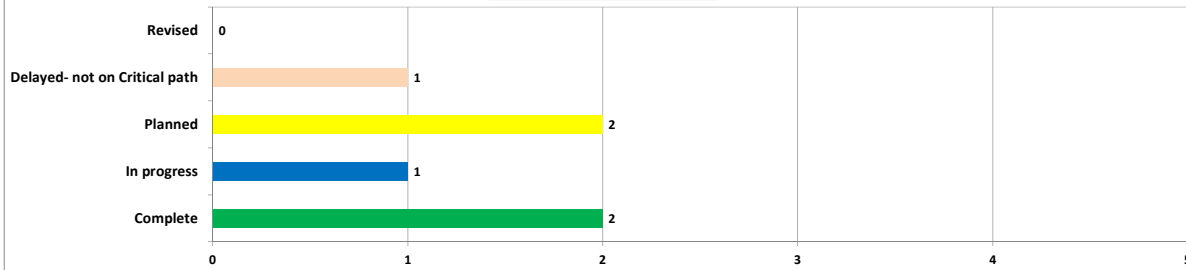


ICA-Project Milestone Status

31-Jul-18

S.No	Milestone (2017-2018)	Planned Start	Planned Finish	Actual Start	Actual Finish	Status	Remarks
1	Stakeholder Engagement- Intro & Fundamentals	18-May-17	20-Jul-17	18-May-17	20-Jul-17	Completed	
2	RACI for Design Elements	4-Nov-17	4-Nov-17	4-Nov-17	4-Nov-17	Completed	
3	Stakeholder Engagement- Options & Recommendations	16-Aug-17	17-Apr-18	16-Aug-17		In Progress	
4	RFP for Auction Engine	1-Feb-18	3-Jul-18			Delayed-Not on Critical Path	RFI Completed, RFP Process reforecasted based on ICA priorities, Scheduled for Q1 2019
5	Stakeholder Engagement- Design Decision	12-Sep-18	18-Oct-18			Planned	
6	Publish HLD internally	3-Dec-18	31-Dec-18			Planned	

Milestone (2017-2018)



ICA-Design Elements Progress

31-Jul-18

S.No	Design Elements	Completion Stages	Stages Completed	STAGES									
									Internal	External	Internal	Approval	
				1. Options & Recommendations	2. SE Presentation	3. Receive SE Feedback	4. Preliminary Decision	5. Draft Contents	6. Review 1	7. Review 2	8. Review 3	9. Review 4	
1	DE 1: Participation Requirement	9	3	Completed	Completed	Completed	In Progress						
2	DE 2: Resource Eligibility	9	3	Completed	Completed	Completed	In Progress	In Progress					
3	DE 3: Qualified Capacity	9	3	Completed	Completed	Completed	In Progress	In Progress					
4	DE 4: Market Power Mitigation	9	3	Completed	Completed	Completed	In Progress						
5	DE 5: Length of forward Period	9	4	Completed	Completed	Completed	Completed	In Progress					
6	DE 6: Commitment Period	9	3	Completed	Completed	Completed	In Progress	In Progress					
7	DE 7: Multi year Commitment	9	3	Completed	Completed	Completed	In Progress						
8	DE 8: Locational Considerations	9	3	Completed	Completed	Completed	In Progress	In Progress					
9	DE 8: Locational Considerations-Part 2	9	3	Completed	Completed	Completed	In Progress						
10	DE 9: Slope of Demand Curve	9	3	Completed	Completed	Completed							
11	DE 9: Demand Curve Analysis	9	1	Completed	In Progress								
12	DE 10: Target Capacity	9	3	Completed	Completed	Completed	In Progress	In Progress					
13	DE 11: Min/Max Capacity Limits	9	3	Completed	Completed	Completed	In Progress						
14	DE 12: Net Cost of New Entry	9	3	Completed	Completed	Completed	In Progress						
15	DE 13: Max auction Clearing Price	9	3	Completed	Completed	Completed							
16	DE 14: Rebalancing Auctions	9	3	Completed	Completed	Completed	In Progress	In Progress					
17	DE 15: Resource Obligations (within forward period)	9	3	Completed	Completed	Completed	In Progress	In Progress					
18	DE 16: Non-performance Implications (within forward period)	9	3	Completed	Completed	Completed	In Progress	In Progress					
19	DE 17: Resource performance Obligation	9	3	Completed	Completed	Completed	In Progress	In Progress					
20	DE 18: Performance Assessment	9	3	Completed	Completed	Completed	In Progress	In Progress					
21	DE 19: Cost Recovery	9	3	Completed	Completed	Completed	In Progress						

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Program: MRP-Market Renewal Program

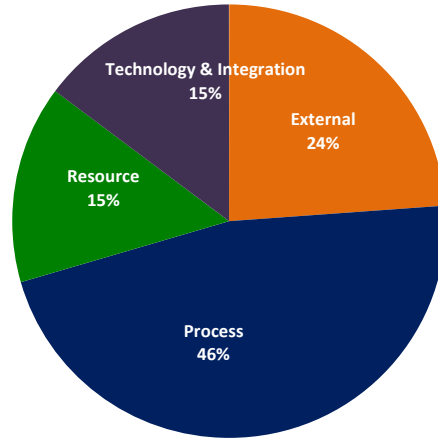
Monthly Risk Report For MRESC

July 31, 2018

Document Ref. No.: PRG_MRR03

Period: Month Ending: 31-Jul-18

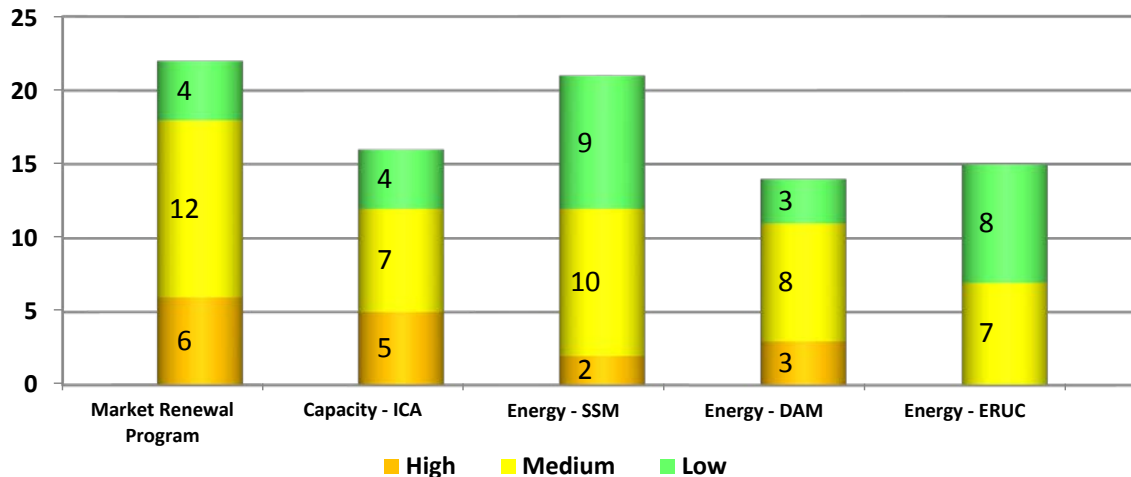
MRP - Total Residual Risk By Category



All program and project risks have been categorised into four categories, with the largest category of risks being categories as "Process" risks.

MRP - Total Residual Risk By Project

Number of Risks



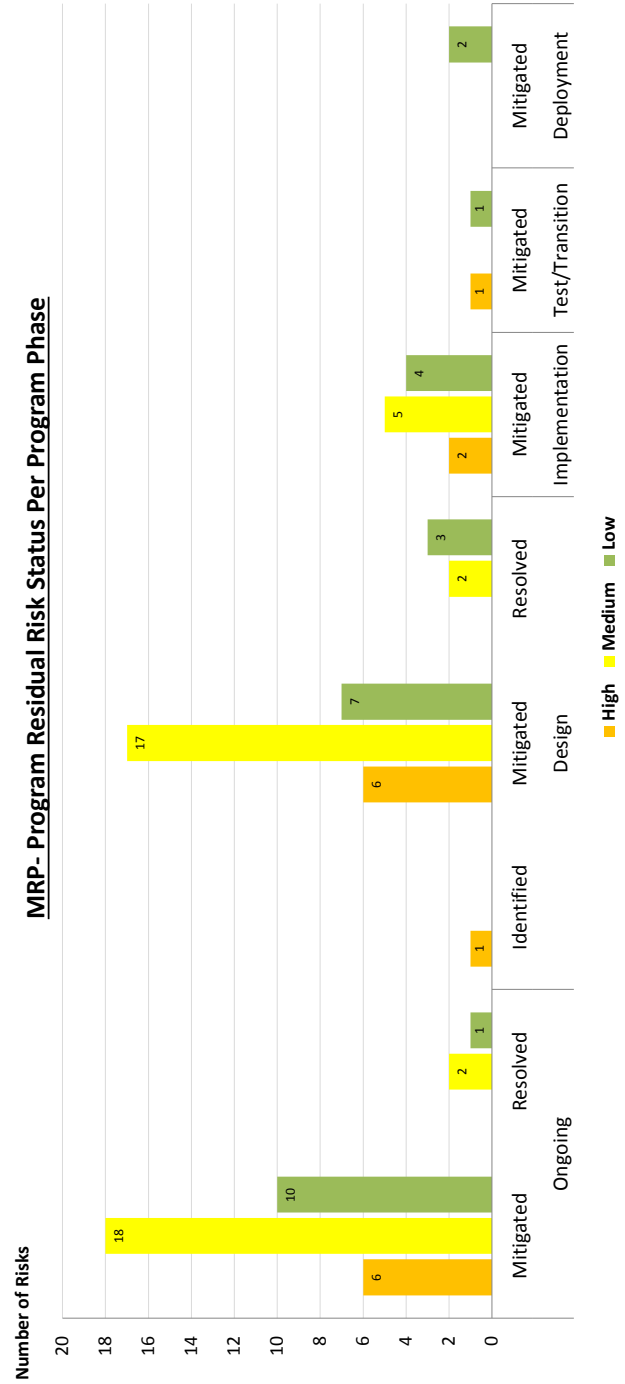
All MRP Risks have been divided into the four projects: SSM, DAM, ERUC and ICA, and Program risks. Each identified risk was assessed with the project team, and the document the risk response tasks that will be implemented proactively to prevent or at least reduce the level of the identified risk. In total we currently have 88 Risks

MRP RISK SUMMARY - MRESC as of July 31, 2018

TOP MRP CONTROLLABLE RISKS

Risk ID	Work Stream	Program Phase	Category	Description	Residual Risk Level	Response Tasks	Monthly Trend
MRP_R003	Market Renewal Program	Ongoing	Process	Critical interdependencies with other projects (e.g. CRS Replacement)	High	MRP Representation on dependent projects and representation on PSC. MRP leads and BA's to work with dependant projects to identify any impacts during design phase.	High
MRP_R005	Market Renewal Program	Ongoing	Process	Difficulty reaching agreement with internal stakeholders (Change Management).	High	Operations and IT Leads assigned to reduce the impact as they are representing their respective areas. Director's Forum is setup to facilitate these escalations. Final step for resolution is the MRESC	High
MRP_R015	Market Renewal Program	4.1 Implementation	Technology & Integration	Design decisions need to be revisited due to technical limitations	High	IT Lead and resources have been introduced early on the program to reduce the likelihood and impact of this occurring. Furthermore software vendors will be part of the HLD.	High
ICA_R019	Capacity - ICA	4.5 Test/Transition	Process	The need for parallel activities on timeline (e.g. market rules with market manuals at technical panel)	High	Start activities as early as possible.	High
DAM_R007	Energy - DAM	3.5 Design	Process	Contract negotiations fail to incent sufficient participation to achieve material price convergence between DAM & Real Time	High	Ensure full participants engaging/soliciting on design features to ensure design will incentivize (price certainty, overall lower cost, etc...)	High
DAM_R012	Energy - DAM	3.5 Design	Process	Contracted or rate-regulated participants may be resistive to DAM participation rules and two-settlement outcomes	High	Develop a strategic engagements plan with the SE team	High
ICA_R024	Capacity - ICA	3.5 Design	Process	Lack of clarity regarding division of accountability between ICA Team and line of business	High	Engage internal stakeholders regarding roles and responsibilities of line staff vs. the ICA Team	High
MRP_R022	Market Renewal Program	3.5 Design	Process	Business Case approvals - approval delays could cause release of Capital expenditure for Detail work on Energy and Capacity work streams	High	TBD	High

MRP- Program Residual Risk Status Per Program Phase



Updates on KPMG Risk Assessment
 KPMG Risk Assessment Project Kick off - completed on 18 June, and weekly status meeting updates in place. The first phase of the engagement is expected to be approximately five months, with a final presentation on findings to the Audit Committee and Board of Directors in December.
 Currently working on the following deliverables:
 1. Commence Reviewing the Enterprise Risk Management Framework (ERM), Methods and Reports.
 2. Commence drafting a training outline to be presented to the Program Management Team regarding ERM risk assessment and project management fundamental.
 Dates set for MRP Training - Sept 14. Three two hours sessions. This includes session one for MRP Leadership, session two for Capacity and session three or Energy workstream.

MARKET RENEWAL PROGRAM

Program Status Update Summary

Schedule

The program is behind schedule, with a cumulative Schedule Performance Index (SPI) of 0.92. This is still in the Green category, but a value of 0.89 or below triggers a switch into Yellow. The primary drivers are delays in re-procuring a consultant to support the Incremental Capacity Auction project, along with challenges in attracting and securing sufficient quantities of qualified candidates to fill budgeted roles.

Cost

The program is under budget, with a cumulative Cost Performance Index (CPI) of 1.34. This is in the Green category, and corresponds to the SPI being less than 1. The program has not been able to spend the budgeted money on the consultants and resources as planned in the schedule, resulting in an overall underspend against the forecast.

Risk

A risk consultant, KPMG, is now onboard and working jointly with the MRP and Enterprise Risk teams. They are currently working on the refinement of existing IESO Risk Assessment Framework, which includes: 1) Gap analysis between the Project Risk Framework (PRF) and Enterprise Risk Management (ERM), and 2) identifying leading best practices into integrate with PRF and ERM.

Upcoming Milestones

The High Level Design document for the Single Schedule Market (SSM) within the Energy work stream is on track to be published by September 30, 2018 for external stakeholder review and feedback.

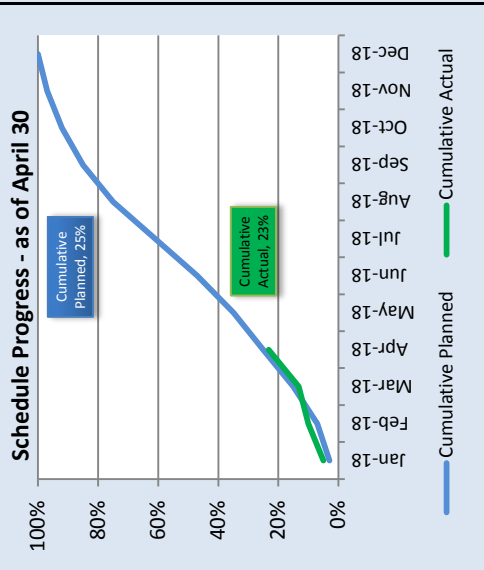
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LEGEND					
Colour	Cost	Schedule	Risk	Trend	
G	TBD	TBD	TBD	↑	Improving
Y	TBD	TBD	TBD	→	No Change
R	TBD	TBD	TBD	↓	Slipping

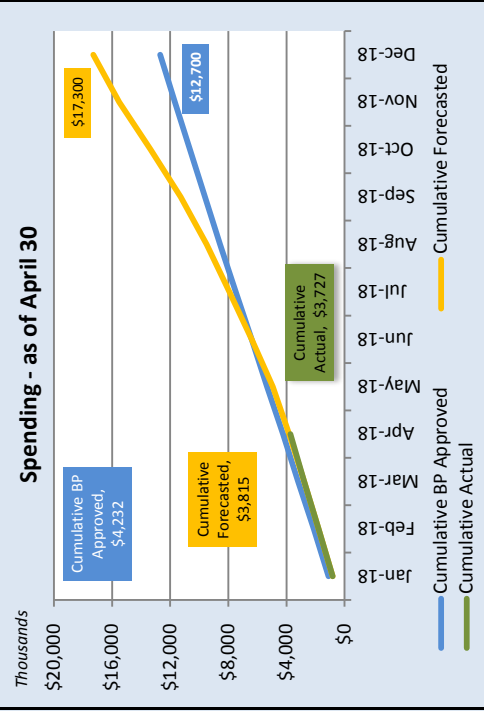
MARKET RENEWAL PROGRAM DASHBOARD

Status Date:
May 2018

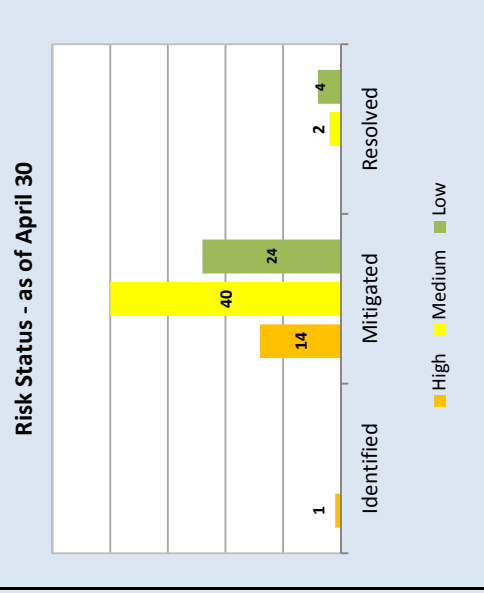
Schedule	
Previous Month	G
Current Month	G
Overall Trend	→



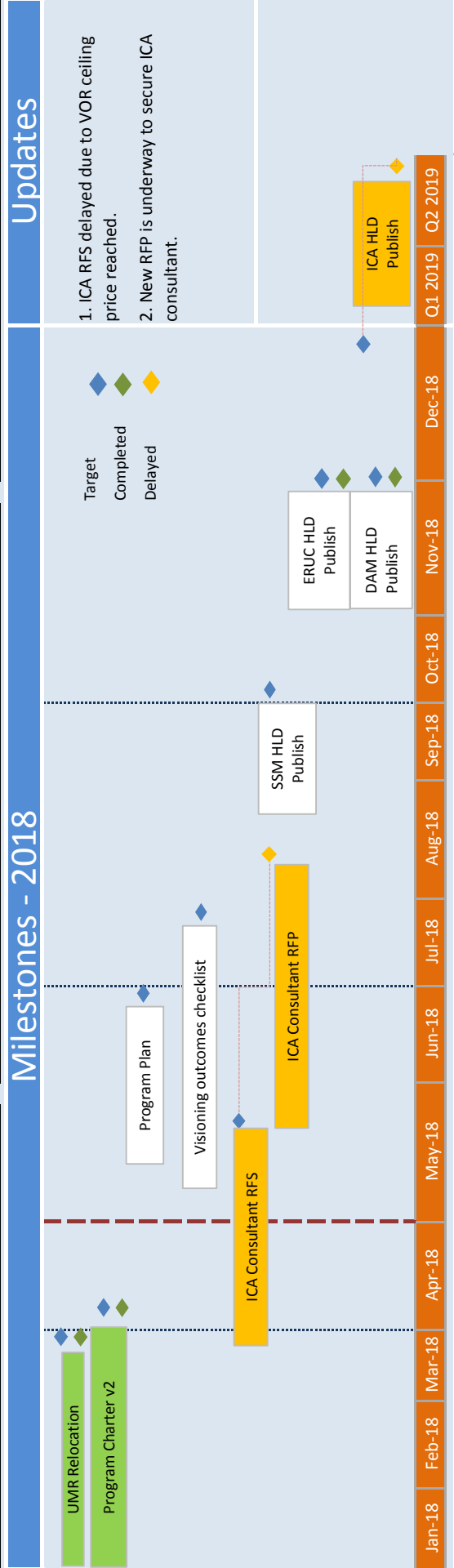
Costs	
Previous Month	G
Current Month	G
Overall Trend	→



Risks	
Previous Month	G
Current Month	G
Overall Trend	→



Milestones - 2018



Updates

- ICA RFS delayed due to VOR ceiling price reached.
- New RFP is underway to secure ICA consultant.



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MARKET RENEWAL PROGRAM DASHBOARD

Key Summary

Schedule

The program is behind schedule, with a cumulative Schedule Performance Index (SPI) of 0.92. This is still in the Green category, but a value of 0.89 or below triggers a switch into Yellow. The primary drivers are delays in re-procuring a consultant to support the Incremental Capacity Auction project, along with challenges in attracting and securing sufficient quantities of qualified candidates to fill budgeted roles.

Cost

The program is under budget, with a cumulative Cost Performance Index (CPI) of 1.34. This is in the Green category, and corresponds to the SPI being less than 1. The program has not been able to spend the budgeted money on the consultants and resources as planned in the schedule, resulting in an overall underspend against the forecast.

Risk

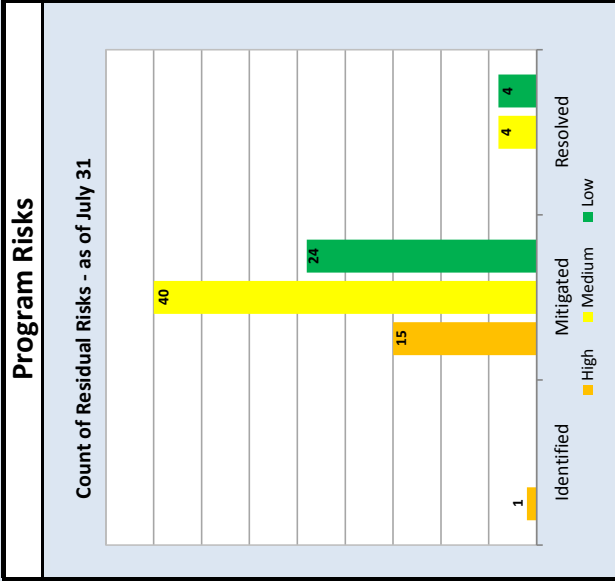
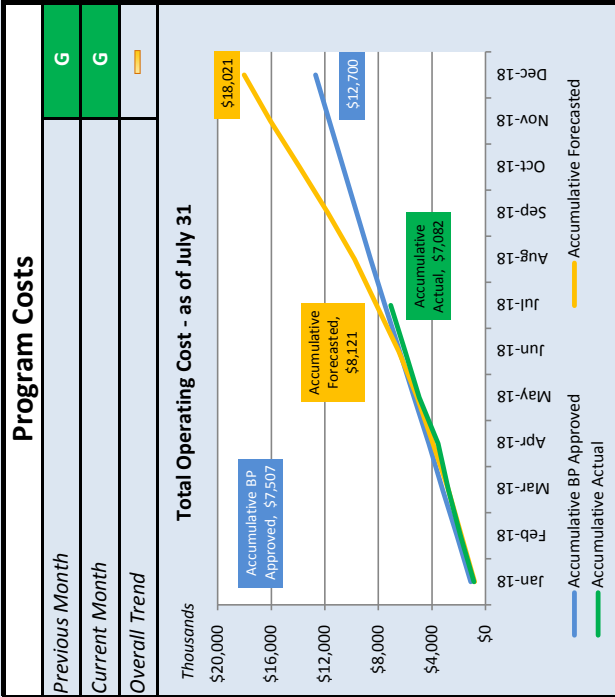
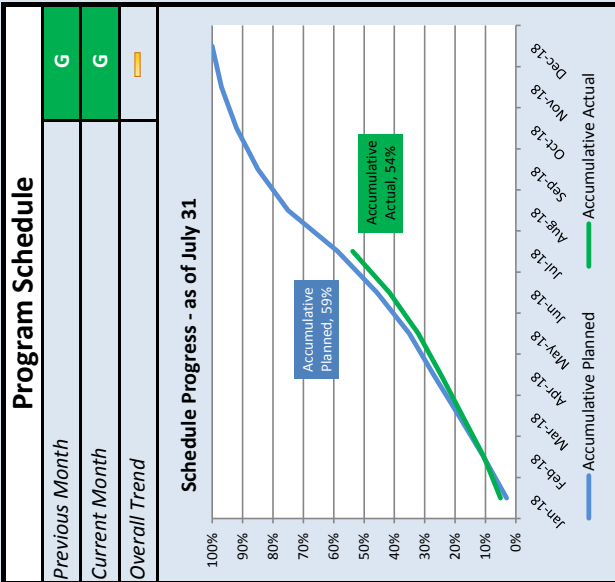
A risk consultant, KPMG, is now onboard and working jointly with the MRP and Enterprise Risk teams. They are currently working on the refinement of existing IESO Risk Assessment Framework, which includes: 1) Gap analysis between the Project Risk Framework (PRF) and Enterprise Risk Management (ERM), and 2) identifying leading best practices into integrate with PRF and ERM.

Upcoming Milestones

The High Level Design document for the Single Schedule Market (SSM) within the Energy work stream is on track to be published by September 30, 2018 for stakeholder review and feedback.

Schedule, Cost, Risk, and Milestone data as of July 31, 2018.
Prepared: August 10, 2018
Audit Committee Meeting: August 28, 2018
Board of Directors Meeting: August 29, 2018

MARKET RENEWAL PROGRAM DASHBOARD



Overall Program

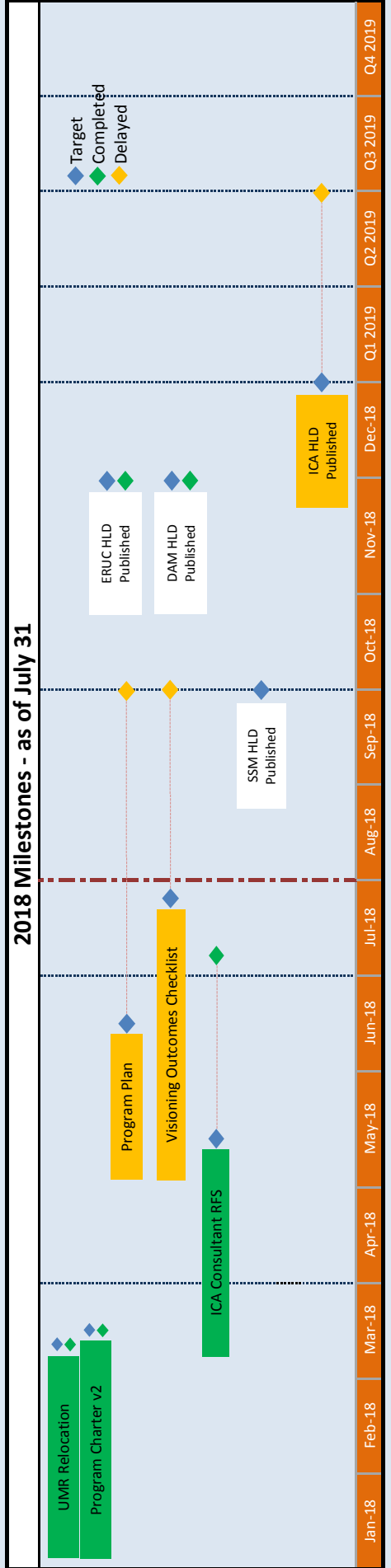
Previous Month	G
Current Month	G
Overall Trend	—

Legend

Colour	Schedule	Cost
G	On Schedule, within 10% of schedule contingency.	On Budget, within 10% of cost contingency.
Y	Use of 10% to 100% of schedule contingency.	Use of 10% to 100% of cost contingency.
R	Forecasted greater than 100% contingency	Forecasted greater than 100% contingency

Overall Program

Overall Program	Trend
All project constraints are "green".	Improving
One of the constraints is "yellow".	No Change
More than one constraint is "yellow" or any one constraint is "red".	Slippage



1 SEC INTERROGATORY 21

2 **6.2-SEC-21**

3 INTERROGATORY

4 Please provide an updated Market Renewal Project budget in the same format as provided in
 5 response to BOMA IR #45 (EB-2017-0150 Exhibit I-1.6-Schedule 2.45 BOMA 45(a)(i), p.4). Please
 6 provide an explanation of all differences for costs between 2018 and the end of the program.

7 RESPONSE

8 The total program budget is currently estimated at \$218 million, with further budget refinement
 9 expected with the completion of the business case at the end of 2019. The original forecast in
 10 BOMA 45 was completed in year one of the program. Since then, the forecast for the program
 11 has increased slightly as a result of more detailed planning for future years.

12 In the 2018 business plan, MRP was budgeted at the program level (i.e. MRP). As 2018 unfolds
 13 and more detailed planning has occurred, actual costs for 2018 are being tracked at the work
 14 stream level, and forecasts to the end of 2018 are also being made at the work stream level.
 15 While these actual and forecasts for 2018 are at the work stream level, they can only be
 16 compared against the 2018 budget that is at the overall program level. Going forward, the IESO
 17 is working on developing and refining budgets for 2019 at the workstream level, which will
 18 allow cost tracking at that level in 2019.

		2017	2018	2019	2020	2021	2022	2023	2024	Total Program
		Actual	Forecast	Budget	Budget	Budget*	Budget*	Budget*	Budget*	
Energy	Operating	3.2	4.6							
Energy	Capital	-	0.5							
Energy	Total	3.2	5.1							
Capacity	Operating	1.6	5.5							
Capacity	Capital	-	-							
Capacity	Total	1.6	5.5							
General	Operating	3.1	4.8							
General	Capital	0.2	0.7							
General	Total	3.3	5.5							
MRP	Operating	7.9	14.9	6.9	5.5	4.0	3.0			
MRP	Capital	0.2	1.2	34.0	48.0	38.0	27.0			
MRP	Total	8.1	16.1	40.9	53.5	42.0	30.0	15.0	12.0	217.6

19 ** Note: Budget estimates are used for 2021 - 2024 and will be further refined at the completion of the Business Case*

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SEC INTERROGATORY 22

6.2-SEC-22

INTERROGATORY

Please provide an updated Market Renewal Project program milestones in the same format as provided in response to BOMA IR #45 (EB-2017-0150 Exhibit I-1.6-Schedule 2.45 BOMA 45(c), p.5-6). Please provide an explanation of the status of all 2018 milestones and any changes to future milestones.

RESPONSE

The table provided in the response to BOMA Interrogatory 45(c) in EB-2017-0150, Exhibit I, Tab 1.6, Schedule 2.45 has been reproduced here, with status provided for all 2017 and 2018 milestones. Future milestones have been shown with updated forecast dates. The high level design processes have taken longer than originally planned in the 2017 IESO business plan submission. Delays in completing the high level designs have pushed out timing of future milestones that follow high level design.

Program Phase	Program Milestone	Target Date (EB-2017-0150)	Status (June 2018)	Forecast Date
Inception	Benefits Case Finalized	Q1, 2017	Completed	-
Initiation	MRP Stakeholder Engagement & Design Start	Q1, 2017	Completed	-
Initiation	MRP Stakeholder Engagement & Design End	Q3, 2018	In Progress	Q1, 2019
Planning	Business Case Finalized	Q3, 2018	Delayed	Q4, 2019
Design	Detailed Design Start	Q3,2018	Delayed	Q4, 2018
Initiation	MRP Stakeholder Engagement & Design - Contingency Start	Q3, 2018	In Progress	Q3, 2018
Planning	MRP Stakeholder Engagement & Design - Contingency End	Q4, 2018	In Progress	Q1, 2019
Implementation	Implementation Start	Q2, 2019	-	Q4, 2019
Design	Detailed Design End	Q4, 2019	-	Q4, 2020
Deployment	In Service: Capacity Auction	Q2, 2020	-	Q4, 2023
Implementation	Implementation - Contingency Start	Q2, 2021	-	-
Implementation	Implementation End	Q2, 2022	-	Q4, 2022

Program Phase	Program Milestone	Target Date (EB-2017-0150)	Status (June 2018)	Forecast Date
Deployment	In Service: Energy	Q2, 2022	-	Q2, 2022
Implementation	Implementation - Contingency End	Q3, 2023	-	-
Deployment	In Service Contingency: Capacity Auction	Q2, 2021	Not Started	
Deployment	In Service Contingency: Energy	Q3, 2023		

1 SEC INTERROGATORY 23

2 **6.2-SEC-23**

3 INTERROGATORY

4 [Exhibit C-2-1, p.9] Please provide a breakdown of both 2017 actual and 2018 planned
 5 'Professional & Consulting' market renewal costs. This breakdown should provide information
 6 regarding who the service providers are, their cost, and a summary of the services provided.

7 RESPONSE

8 A breakdown of 2017 actual and 2018 planned 'Professional & Consulting' market renewal costs
 9 is provided below:

Professional & Consulting Costs - MRP					
Vendor	SOW/Description	2017	2018		
		(\$ Millions)	(\$ Millions)		Total Planned
		Actuals	Actuals	Forecast Jul - Dec	(Jan - Dec)
FTI Consulting Services	Consultant support for High Level Design - Single Scedhule Market (SSM)	0.8	0.2	0.4	0.6
FTI Consulting Services	Consultant support for High Level Design - Day-Ahead-Market (DAM)	0.3	0.1	0.1	0.2
FTI Consulting Services	Consultant support for High Level Design - Enhanced Real-Time Unit Commitment (ERUC)	0.4	0.1	-	0.1
Charles River Associates	Review of MRP's impact on existing supply contracts	0.1	0.2	0.2	0.4
Navigant Consulting Limited	Stakeholder Education	0.3	-	-	-
Wilson CTS - Recruiter	Recruitment Services	0.1	-	0.1	0.1
Multiple Vendors	Venue rental for Stakeholdering events	0.1	-	-	-
The Brattle Group	Consultant support for Business Plan Submissions	0.1	-	-	-
The Brattle Group	Consultant support for High Level Design - Incremental Capacity Auction (ICA)	0.8	0.5	1.1	1.6
The Brattle Group	Consultant support for participating in Future Markets		0.3	0.6	0.9
Oslers LLP	Legal support for MRP designs, supply contract impacts, and general MRP support		0.1	0.2	0.3
Stikeman Elliot LLP	Legal support for MRP designs, including governance and decision-marking engagement		-	0.3	0.3
Hunton Andrews Kuth LLP	Legal support for MRP designs, including governance and decision-marking engagement		-	0.2	0.2
Torys LLP	Legal support for procurement		-	0.2	0.2
Total Professional & Consulting		3.0	1.5	3.3	4.8

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1 SEC INTERROGATORY 24

2 **6.2-SEC-24**

3 INTERROGATORY

4 [Exhibit C-2-1, p.9] Please update table 3 to provide year-to-date actuals.

5 RESPONSE

6 Please see the response to OEB Interrogatory 16(b) at Exhibit I, Tab 6.2, Schedule 1.16.

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1 VECC INTERROGATORY 6

2 VECC-6 – ISSUE 6.2

3 INTERROGATORY

4 Reference: Exhibit B/Tab 2/Schedule 1/pg.3

5 a) Please describe the Market Renewal Program (MRP) capital expenditure projects that have
6 begun or are expected to begin by or before the end of 2018.

7 b) Please provide the start date of these programs.

8 c) What are the MRP capital expenditures to-date?

9 RESPONSE

10 a) b) and c) Please see the response to OEB Staff Interrogatory 17(a) at Exhibit I, Tab 6.3,
11 Schedule 1.17.

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