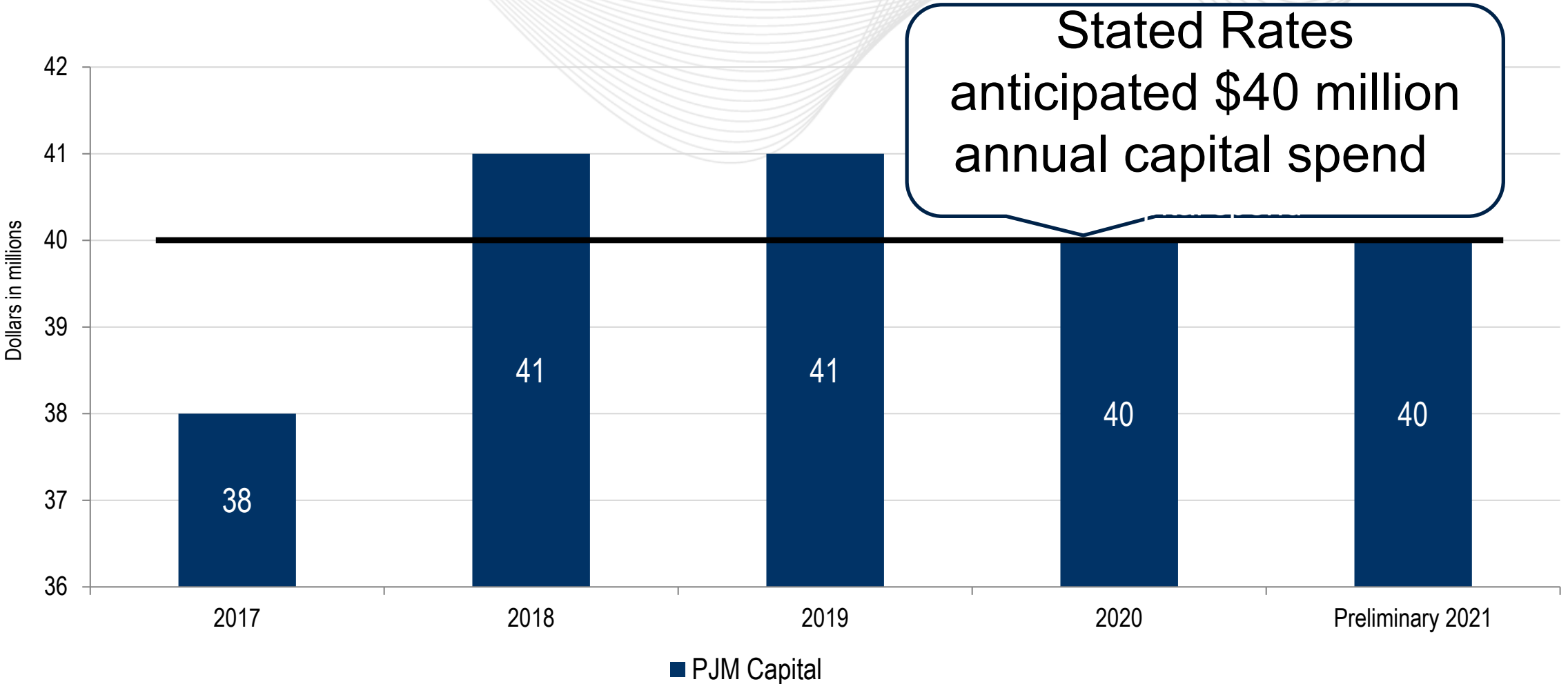


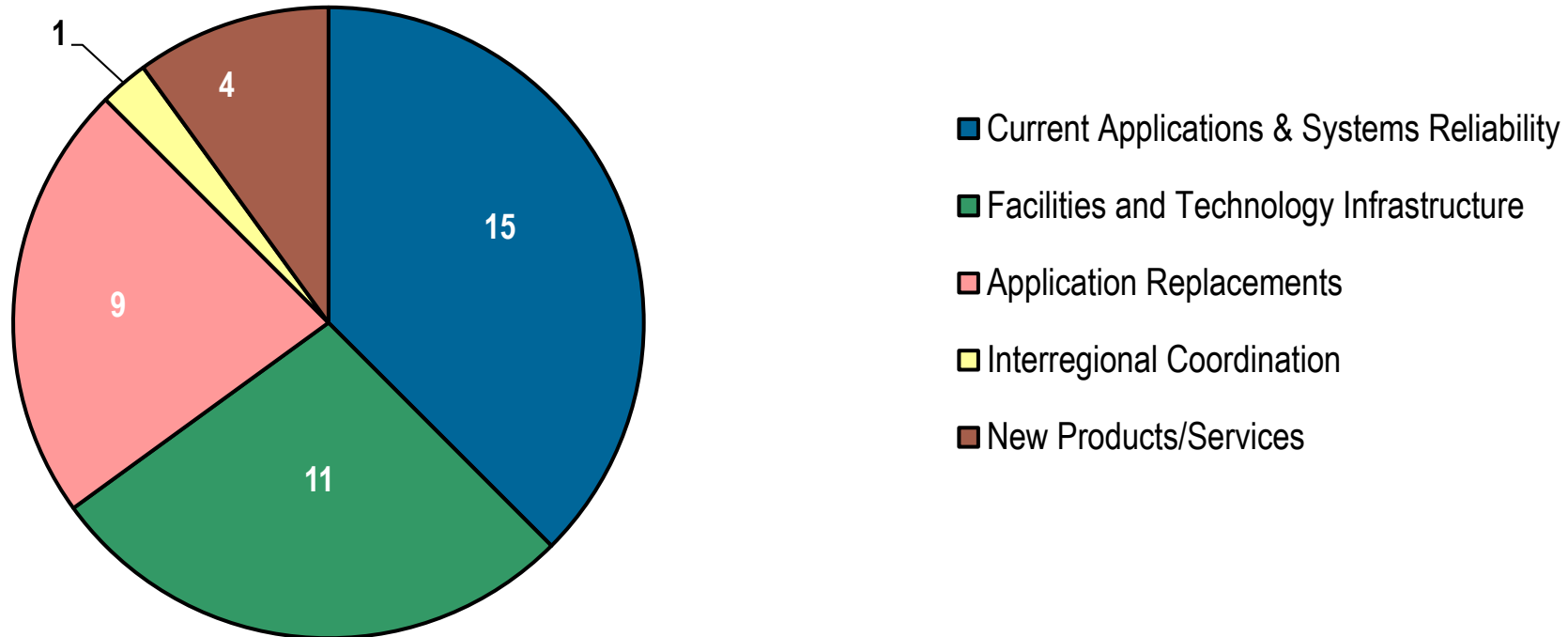


Preliminary 2021 Capital Budget

Jim Snow
Market Implementation Committee
September 2, 2020



Total = \$40 million





Current Applications & Systems Reliability

| (dollars in millions, except rates) | 2020 | 2021 |
|-------------------------------------|------|------|
| Capital | 19 | 15 |
| Expense | 6 | 5 |

eDART Refresh and Enhancements – A series of projects to integrate the Dispatcher Application and Reporting Tool (eDART) into PJM’s updated standardized software tools framework, and to provide functional enhancements to the application.

Cyber Security Enhancements – A series of projects to enhance monitoring and security access of PJM’s computer systems.

Membership Tool Enhancements – A series of projects to enhance the customer relationship management platform, the member meeting voting application, and the system that allows our members to control access to our tools for their accounts.

Markets and Operations Process Improvements – Automation and efficiency improvements for markets and operations related applications.

Access and Identity Manager – A series of projects to improve and enhance access workflows for personnel transfer, start-up and separation requests.

PJM.com and Intranet Enhancements – A series of projects to address functionality updates to PJM.com and PJM’s internal website.

Master Data Management – A single source of data for persistent objects in PJM’s systems, such as generators, transmission lines, and member data used by the PJM organization in various tools and applications.

Dispatch Tools Enhancements – A series of enhancements to improve operational and dispatcher situational awareness

| <i>(dollars in millions, except rates)</i> | 2020 | 2021 |
|--|------|------|
| Capital | 11 | 11 |
| Expense | 1 | 2 |

Technology Infrastructure Upgrades – Projects purchasing network, server, and storage infrastructure equipment. This scope will align technology with PJM’s current architecture as older infrastructure becomes obsolete.

Chiller Replacements and Backup Cooling – Replacement of Valley Forge Control Center below grade level cooling units and adding backup cooling method to Uninterrupted Power Supply (UPS) rooms.

Conference Room Equipment Replacements – Replace aging conference room equipment and enhance the capabilities to facilitate collaboration with participants for both onsite or remote participants.

Dispatch Video Wall Replacements– Replacing a portion of aging video cubes and engine devices for the Dispatch video walls which will provide spare parts enabling prolong life of the walls.

| <i>(dollars in millions, except rates)</i> | 2020 | 2021 |
|--|------|------|
| Capital | 6 | 9 |
| Expense | 4 | 5 |

nGEM – This project is a collaborative project with vendor and ISOs/RTOs to transform the market systems architecture, technology and products.

Energy Management System/Spectrum 7 Upgrade – This project will implement upgraded architecture allowing for future expansion of PJM’s Supervisory Control and Data Acquisition (SCADA) and Automated Generation Control (AGC) model.

Energy Management Network Application Evolution – This project will implement updated architecture allowing for future expansion of PJM’s Transmission Network Application (TNA) system.

Market Settlements System Refresh – The Market Settlements calculations and reporting systems will be updated and repositioned on a PJM supported platform enabling the retirement of the vendor supported legacy platform.

Telephone System Refresh – This project will replace PJM’s Private Branch Exchange (PBX) and voicemail system.

| <i>(dollars in millions, except rates)</i> | 2020 | 2021 |
|--|------|------|
| Capital | 3 | 4 |
| Expense | 1 | 1 |
| <p>Reserve Market Price Formation – This project addresses the implementation of market changes that result from FERC’s price formation proceedings. These changes may affect one or more market clearing engines.</p> <p>Financial Risk Mitigation Effort – A series of projects to address expansion of market surveillance.</p> <p>Commercial DIMA– This project will provide transmission owner access to the Dispatch Interactive Map Application that enhances grid operator situational awareness.</p> | | |

| <i>(dollars in millions, except rates)</i> | 2020 | 2021 |
|---|------|------|
| Capital | 1 | 1 |
| Expense | --- | --- |
| <p>Market-to-Market Enhancements – This project will address work required for vulnerabilities identified in the dispatch management tool and updates to password encryption methodologies.</p> <p>Market-to-Market Freeze Date – This project will update the historical transmission entitlements calculations to align with planning, markets and operations processes.</p> <p>Automated Checkout – This project will automate the Net Schedule Interchange (NSI) checkout process between PJM and its neighboring balancing authorities.</p> | | |

- Control Center Generator Replacement \$5.4M– Replacement of aging backup diesel generators for the control center building
- Hardware Replacements \$1.0M – A series of purchases for aging computer hardware
- Market Application Enhancements \$1.0M – A series of enhancements to existing Markets applications

| Date | Group | Topics |
|--------------|--|--|
| August 19 | Finance Committee | Preliminary 2021 Budget and Projects |
| September 1 | Planning Committee | Preliminary 2021 Projects |
| September 2 | Market Implementation Committee | Preliminary 2021 Projects |
| September 3 | Operating Committee | Preliminary 2021 Projects |
| September 9 | Finance Committee | Proposed 2021 Budget Recommendations |
| September 16 | Finance Committee Member Representatives | Recommendation Letter to PJM Board of Managers |
| September 22 | Board of Managers | Consideration of Proposed 2021 Budget |

The information provided in this presentation is intended for PJM members use to conduct PJM business only.

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Preliminary 2021 Capital Projects



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