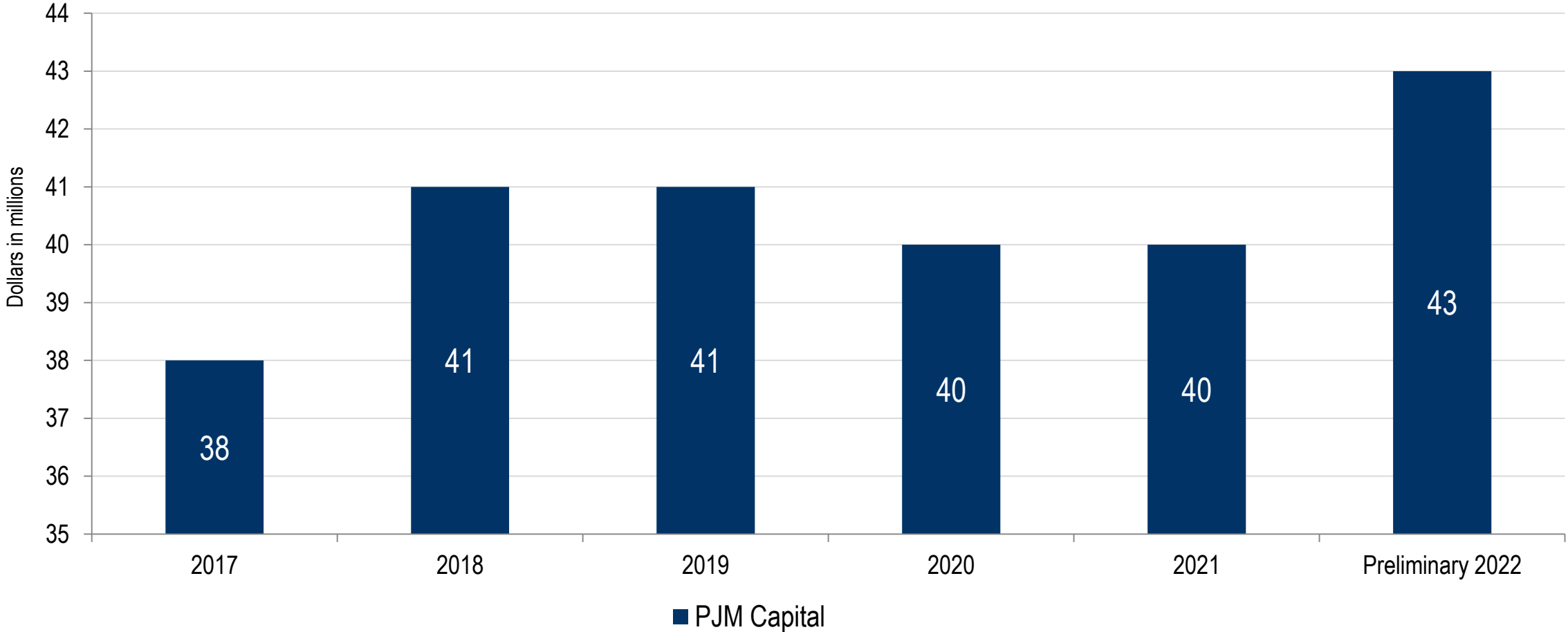


# Preliminary 2022 Project Budget

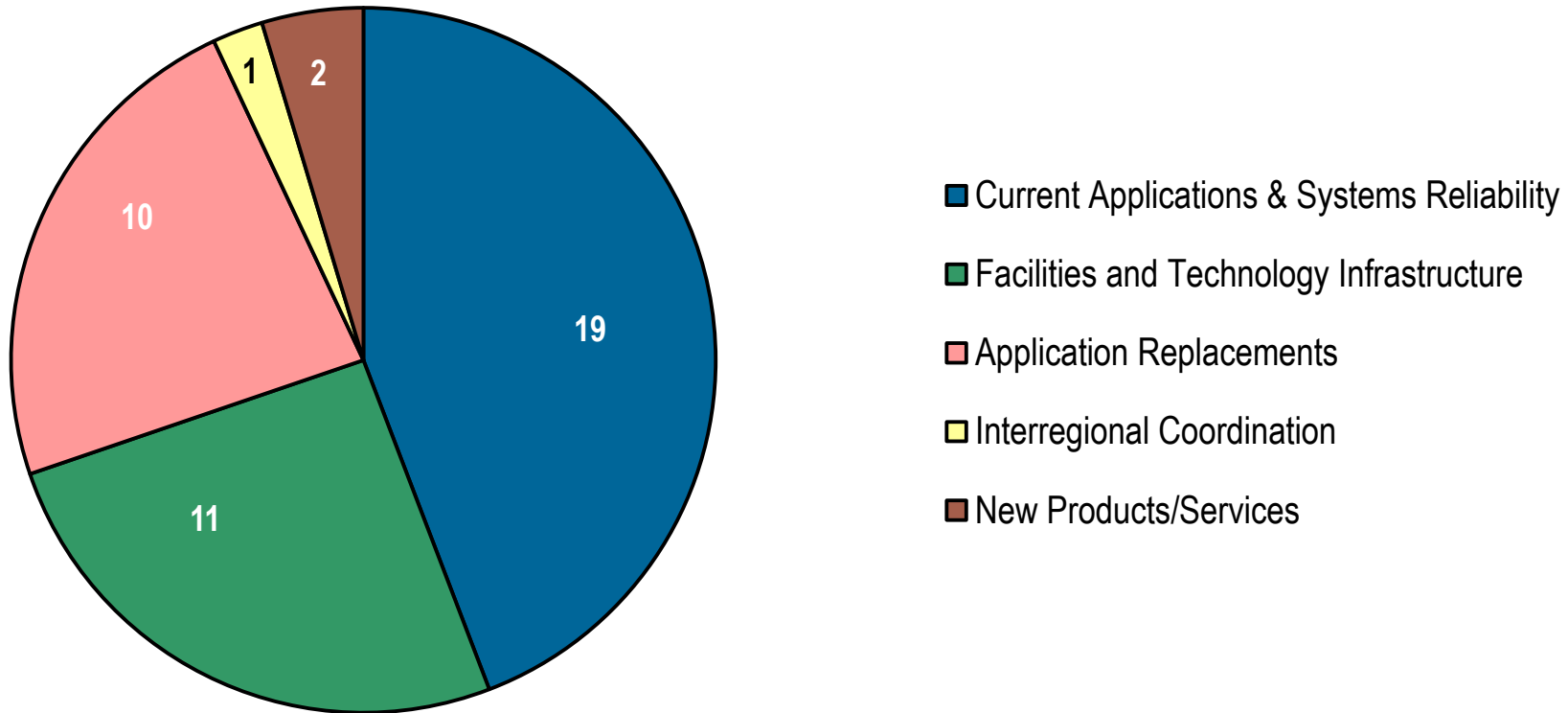
Market Implementation Committee  
September 9, 2021  
Jim Snow

# Annual Capital Expenditures



# Preliminary 2022 Capital Budget

Total = \$43 million



# Current Applications & Systems Reliability

<i>(dollars in millions, except rates)</i>	2021	2022
Capital	15	19
Expense	5	6

**Cyber Security Enhancements** – A series of projects to enhance monitoring and security access of PJM’s computer systems. *Service Category: 9-5 Management Services*

**Credit and Risk Enhancements** – Automation and efficiency improvements for internal credit or risk applications. *Service Category: 9-PSI PJM Settlements Inc. and 9-2 FTR Services*

**Dispatch Tools Enhancements** – A series of enhancements to improve operational and dispatcher situational awareness. *Service Category: 9-1 Control Area Services*

**System Planning Enhancements** – Automation and efficiency improvements for system planning related applications. *Service Category: 9-1 Control Area Services and 9-4 Capacity Reserve Services*

**DART Refresh and Enhancements** – A series of projects to integrate the Dispatcher Application and Reporting Tool (DART) into PJM’s updated standardized software tools framework, and to provide functional enhancements to the application. *Service Category: 9-1 Control Area Services*

**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. *Service Category: 9-5 Management Services*

**Master Data Management Enhancements** – 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. *Service Category: 9-1 Control Area Services*

**Access and Identity Manager** – A series of projects to improve and enhance access workflows for personnel transfer, start-up and separation requests.  
*Service Category: 9-5 Management Services*

**Data Analytics** – A series of projects to support future data analysis at PJM through processes and tools. *Service Category: 9-5 Management Services*

# Facilities and Technology Infrastructure

<i>(dollars in millions, except rates)</i>	2021	2022
Capital	11	11
Expense	2	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. *Service Category: 9-5 Management Services*

**Pandemic Infrastructure Upgrades** – Upgrades to physical and virtual equipment based on lessons learned from the pandemic to enable essential operations onsite and in a work from home posture. *Service Category: 9-5 Management Services and 9-1 Control Area Services*

**Cyber Security Upgrades** – Equipment upgrades for cyber security monitoring and security access applications. *Service Category: 9-5 Management Services*

**Facility Cooling Replacements** – Increasing size of cooling system to effectively support chiller load capacity and adding back-up cooling to Milford Uninterrupted Power Supply (UPS) and communication rooms. *Service Category: 9-5 Management Services*

<i>(dollars in millions, except rates)</i>	2021	2022
Capital	9	10
Expense	5	4

**Next Generation Markets Systems (nGEM)** – This project is a collaborative project with vendor and ISOs/RTOs to transform the market systems architecture, technology and products. *Service Category: 9-3 Market Support Services*

**Energy Management Network Application Evolution** – This project will implement updated architecture allowing for future expansion of PJM’s Transmission Network Application (TNA) system. *Service Category: 9-1 Control Area Services*

**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. *Service Category: 9-1 Control Area Services*

# New Products and Services

<i>(dollars in millions, except rates)</i>	2021	2022
Capital	4	2
Expense	1	1

**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. *Service Category: 9-3 Market Support Services*

**Financial Risk Mitigation Effort** – A series of projects to address expansion of market surveillance. *Service Category: 9-4 Capacity Reserve Services and 9-2 FTR Services*

**Stakeholder-Driven Efforts** – A series of projects to address market system enhancements for areas identified in various task force committees. *Service Category: 9-4 Capacity Reserve Services and 9-2 FTR Services*

# Interregional Coordination

<i>(dollars in millions, except rates)</i>	2021	2022
Capital	1	1
Expense	---	---
<p><b>Market-to-Market Enhancements</b> – Projects will address work required for flowgate calculations changes and create efficiencies within the market-to market application by consolidating and automating processes. <i>Service Category: 9-3 Market Support Services</i></p> <p><b>Automated Checkout</b> – This project will automate the Net Schedule Interchange (NSI) checkout process between PJM and its neighboring balancing authorities. <i>Service Category: 9-1 Control Area Services</i></p>		



# Capital Initiatives Considered and Deferred

- Market Application Enhancements \$0.7M – A series of enhancements to existing Markets applications
- PJM.com/Wired to Cloud \$0.7M – Migrate search engine and content management system to cloud-based application
- Quality Assurance Improvements \$0.7M – Process and tools improvements to better align with QA standards
- Facilities/Campus Improvements \$0.6M – Upgrades to Dispatch workspace and campus camera systems
- Hardware Replacements \$0.5M – A series of purchases for aging computer hardware

Date	Group	Topics
August 16	Finance Committee	Preliminary 2022 Budget and Projects
August 31	Planning Committee	Preliminary 2022 Projects
September 9	Market Implementation Committee	Preliminary 2022 Projects
September 10	Operating Committee	Preliminary 2022 Projects
September 13	Finance Committee	Proposed 2022 Budget Recommendations
September 16	Finance Committee Member Representatives	Recommendation Letter to PJM Board of Managers
September 20	Board of Managers	Consideration of Proposed 2022 Budget