

2023 Enterprise Projects Cost, NYISO Score & Project Constraints

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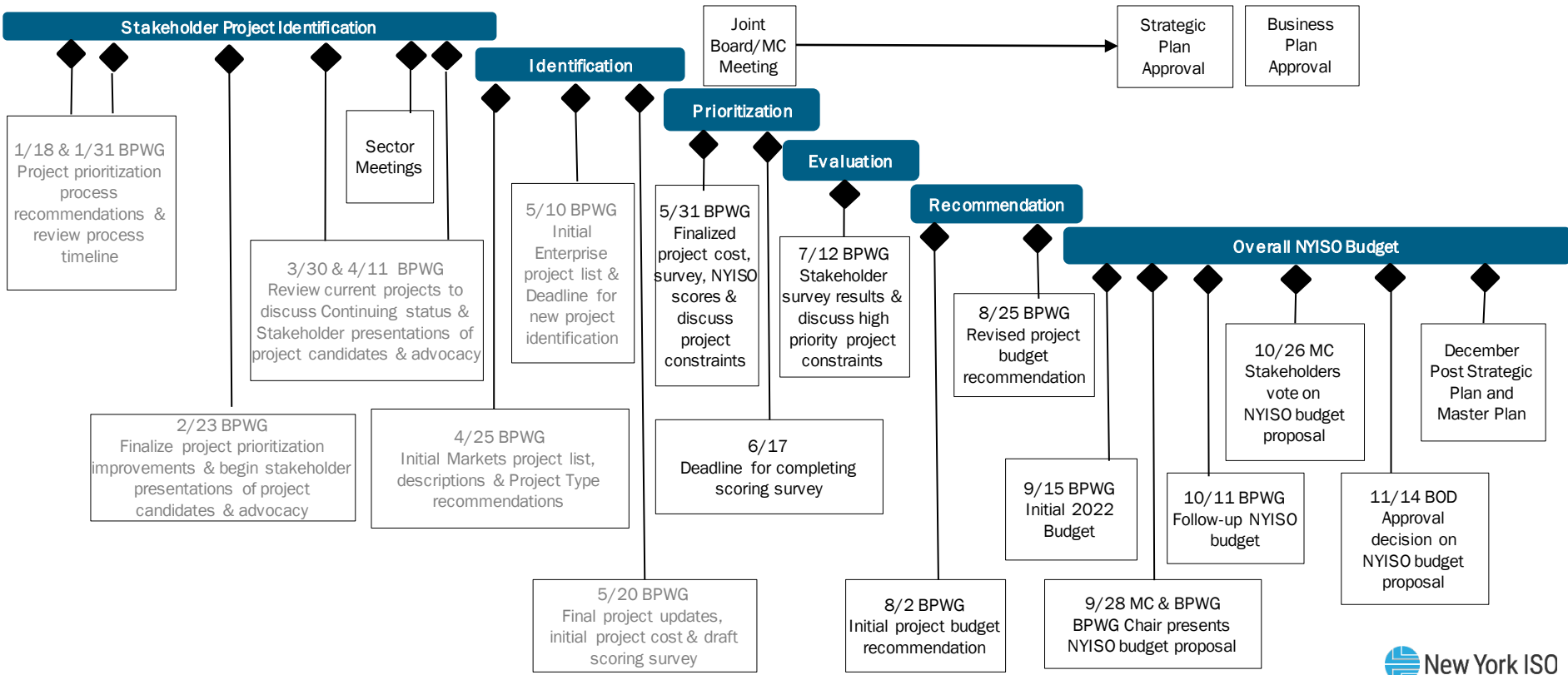
Agenda

- **Project Timeline**
- **Project Descriptions**
- **2023 Enterprise Project Candidates**
- **NYISO Scores & High Priority Project Constraints**
- **Next Steps**

Project Prioritization Timeline

2023 Proposed Project Prioritization Timeline

| | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Jan 2022 | Feb 2022 | Mar 2022 | Apr 2022 | May 2022 | Jun 2022 | Jul 2022 | Aug 2022 | Sep 2022 | Oct 2022 | Nov 2022 | Dec 2022 |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|



Project Descriptions

Project Descriptions

- **The NYISO has developed project descriptions for 50 proposed Enterprise projects**
 - 7 Business & Finance, 3 Capacity Market, 2 Energy Markets, 22 Enterprise, 2 New Resource, 10 Operations and Reliability, 4 Planning & 0 TCC Market
 - 0 Mandatory, 10 Continuing, 40 Prioritize & 0 Future
- **Last year, there were 44 proposed Enterprise projects at this time in the project prioritization process**
- **Project descriptions are included with today's posted meeting materials**

2023 Enterprise Project Candidates - Updates, Costs, and Deliverables

Prioritize 2023 Enterprise Projects

Estimated Cost (in millions)

| Item | Project | Product Area | Project Type | 2023 Proposed Deliverable | 2022 Deliverable | Labor | Capital | Prof. Serv. | Total |
|------|---|--------------------|--------------|---------------------------|-------------------------|-------|---------|-------------|-------|
| 1 | Access Management Platform Upgrade | Enterprise | Prioritize | Deployment | | 0.18 | 0.06 | 0.05 | 0.29 |
| 2 | Block Storage Refresh | Enterprise | Prioritize | Deployment | | 0.10 | 2.29 | 0.23 | 2.61 |
| 3 | BSS and Billsim Upgrade | Enterprise | Prioritize | Deployment | | 0.24 | 0.00 | 0.00 | 0.24 |
| 4 | BTM Solar Demand Forecasting Product Enhancements | Planning | Prioritize | Deployment | Functional Requirements | 0.19 | 0.00 | 0.02 | 0.21 |
| 5 | Budgeting Tool | Business & Finance | Prioritize | Functional Requirements | | 0.15 | 0.13 | 0.00 | 0.28 |
| 6 | Building Management System (BMS) Controls Upgrade | Enterprise | Prioritize | Deployment | | 0.16 | 0.59 | 0.00 | 0.75 |
| 7 | Carman Security Enhancements | Enterprise | Prioritize | Deployment | | 0.05 | 0.90 | 0.00 | 0.95 |

Prioritize 2023 Enterprise Projects

Estimated Cost (in millions)

| Item | Project | Product Area | Project Type | 2023 Proposed Deliverable | 2022 Deliverable | Labor | Capital | Prof. Serv. | Total |
|------|---|--------------------------|--------------|---------------------------|-------------------------|-------|---------|-------------|-------|
| 8 | CMS and ConInvoice Data Integration | Business & Finance | Prioritize | Deployment | Functional Requirements | 0.19 | 0.00 | 0.00 | 0.19 |
| 9 | Contingency Analysis Results for Transmission Owner Situational Awareness | Operations & Reliability | Prioritize | Deployment | Functional Requirements | 0.08 | 0.00 | 0.22 | 0.30 |
| 10 | Control Room Logging Replacement | Operations & Reliability | Prioritize | Functional Requirements | | 0.10 | 0.00 | 0.00 | 0.10 |
| 11 | Credit Price Spread Updates Virtual and External Transactions | Business & Finance | Prioritize | Deployment | Functional Requirements | 0.16 | 0.00 | 0.00 | 0.16 |
| 12 | Demand Forecasting Operational Reporting Enhancements | Planning | Prioritize | Functional Requirements | | 0.12 | 0.00 | 0.00 | 0.12 |
| 13 | DER Operational Enhancements | New Resource | Prioritize | Deployment | #N/A | 0.97 | 0.05 | 0.95 | 1.97 |
| 14 | Generator Modeling Database Enhancements | Planning | Prioritize | Deployment | | 0.09 | 0.05 | 0.25 | 0.39 |

Prioritize 2023 Enterprise Projects

Estimated Cost (in millions)

| Item | Project | Product Area | Project Type | 2023 Proposed Deliverable | 2022 Deliverable | Labor | Capital | Prof. Serv. | Total |
|------|--|--------------------------|--------------|---------------------------|-------------------------|-------|---------|-------------|-------|
| 15 | GFER Enhancements | Operations & Reliability | Prioritize | Deployment | | 0.19 | 0.00 | 0.00 | 0.19 |
| 16 | Grid Operations Web Forms Enhancements | Enterprise | Prioritize | Deployment | | 0.37 | 0.00 | 0.15 | 0.52 |
| 17 | Gurobi Upgrade | Operations & Reliability | Prioritize | Deployment | | 0.09 | 0.00 | 0.40 | 0.49 |
| 18 | ICAP Supplier Status Enhancements | Capacity Market | Prioritize | Functional Requirements | | 0.03 | 0.00 | 0.00 | 0.03 |
| 19 | IT Development and Control of Compliance Reports | Operations & Reliability | Prioritize | Deployment | | 0.11 | 0.00 | 0.00 | 0.11 |
| 20 | Krey Control Room A/V Replacement | Enterprise | Prioritize | Deployment | Study Complete | 0.13 | 0.45 | 0.20 | 0.78 |
| 21 | LFDR Upgrade and Enhancements | Planning | Prioritize | Deployment | Functional Requirements | 0.26 | 0.00 | 0.00 | 0.26 |

Prioritize 2023 Enterprise Projects

Estimated Cost (in millions)

| Item | Project | Product Area | Project Type | 2023 Proposed Deliverable | 2022 Deliverable | Labor | Capital | Prof. Serv. | Total |
|------|---|--------------------------|--------------|---------------------------|-------------------------|-------|---------|-------------|-------|
| 22 | Machine Learning Research and Technology Pilot | Enterprise | Prioritize | Study Complete | | 0.05 | 0.05 | 0.10 | 0.20 |
| 23 | Market Validation, Reporting and Penalty Enhancements | Capacity Market | Prioritize | Software Design | Functional Requirements | 0.16 | 0.00 | 0.00 | 0.16 |
| 24 | Meter Services System | Business & Finance | Prioritize | Deployment | Functional Requirements | 0.17 | 0.00 | 0.00 | 0.17 |
| 25 | Modernizing ASIS | Enterprise | Prioritize | Deployment | | 0.23 | 0.00 | 0.13 | 0.37 |
| 26 | Natural Gas Notices Enhancement Project | Operations & Reliability | Prioritize | Deployment | Functional Requirements | 0.09 | 0.00 | 0.14 | 0.23 |
| 27 | Network Manager Cisco Refresh | Enterprise | Prioritize | Development Complete | | 0.13 | 2.13 | 0.03 | 2.29 |
| 28 | Next Gen Security Architecture | Enterprise | Prioritize | Study Complete | | 0.24 | 0.06 | 0.03 | 0.33 |

Prioritize 2023 Enterprise Projects

Estimated Cost (in millions)

| Item | Project | Product Area | Project Type | 2023 Proposed Deliverable | 2022 Deliverable | Labor | Capital | Prof. Serv. | Total |
|------|---|--------------------------|--------------|---------------------------|------------------|-------|---------|-------------|-------|
| 29 | OASIS Reliability Upgrade | Enterprise | Prioritize | Study Complete | | 0.12 | 0.03 | 0.00 | 0.14 |
| 30 | OMS Enhancement | Operations & Reliability | Prioritize | Deployment | | 0.14 | 0.00 | 0.10 | 0.24 |
| 31 | On-Boarding of New Resources | New Resource | Prioritize | Study Complete | Study Complete | 0.17 | 0.00 | 0.00 | 0.17 |
| 32 | Ongoing TCC Collateral Coverage Assessment Tool | Business & Finance | Prioritize | Functional Requirements | | 0.09 | 0.05 | 0.15 | 0.29 |
| 33 | Outage States Portal Dashboard | Capacity Market | Prioritize | Functional Requirements | | 0.04 | 0.00 | 0.00 | 0.04 |
| 34 | Price Correction Report Modifications | Operations & Reliability | Prioritize | Deployment | | 0.11 | 0.00 | 0.00 | 0.11 |
| 35 | Redundant Wind Solar Forecast Feed - Independent Vendor | Operations & Reliability | Prioritize | Issue Discovery | | 0.03 | 0.00 | 0.00 | 0.03 |

Prioritize 2023 Enterprise Projects

| Item | Project | Product Area | Project Type | 2023 Proposed Deliverable | 2022 Deliverable | Estimated Cost (in millions) | | | |
|------|---|--------------------|--------------|---------------------------|------------------|------------------------------|---------|-------------|-------|
| | | | | | | Labor | Capital | Prof. Serv. | Total |
| 36 | Secure Communication Channel with MPs | Energy Market | Prioritize | Deployment | | 0.11 | 0.00 | 0.00 | 0.11 |
| 37 | Settlement Systems Effective Dating and Filtering of Billing Entities | Business & Finance | Prioritize | Software Design | | 0.11 | 0.00 | 0.00 | 0.11 |
| 38 | Smart Grid Upgrade | Enterprise | Prioritize | Deployment | | 0.11 | 0.00 | 0.00 | 0.11 |
| 39 | Transaction Modifications API | Business & Finance | Prioritize | Functional Requirements | | 0.16 | 0.00 | 0.00 | 0.16 |
| 40 | Watchlist for Rest of State Units | Energy Market | Prioritize | Deployment | | 0.04 | 0.00 | 0.00 | 0.04 |

Continuing 2023 Enterprise Projects

| | | | | | | Estimated Cost (in millions) | | | |
|------|----------------------------------|--------------------------|--------------|---------------------------|------------------|------------------------------|---------|-------------|-------|
| Item | Project | Product Area | Project Type | 2023 Proposed Deliverable | 2022 Deliverable | Labor | Capital | Prof. Serv. | Total |
| 41 | Application Platform Upgrade | Enterprise | Continuing | Deployment | Deployment | 0.83 | 0.00 | 0.00 | 0.83 |
| 42 | Database Upgrade | Enterprise | Continuing | Deployment | Deployment | 0.11 | 0.00 | 0.00 | 0.11 |
| 43 | EMS/BMS Operational Enhancements | Operations & Reliability | Continuing | Deployment | Deployment | 0.06 | 0.00 | 0.72 | 0.78 |
| 44 | IT Infrastructure Automation | Enterprise | Continuing | Deployment | Deployment | 0.14 | 0.11 | 0.20 | 0.44 |
| 45 | ITSM Security Enhancements | Enterprise | Continuing | Deployment | Deployment | 0.39 | 0.00 | 0.63 | 1.02 |
| 46 | Microsoft 365 | Enterprise | Continuing | Deployment | Deployment | 0.34 | 0.10 | 0.30 | 0.74 |
| 47 | Network Infrastructure Upgrade | Enterprise | Continuing | Deployment | Deployment | 0.28 | 2.32 | 0.35 | 2.96 |

Continuing 2023 Enterprise Projects

| Item | Project | Product Area | Project Type | 2023 Proposed Deliverable | 2022 Deliverable | Estimated Cost (in millions) | | | |
|------|---------------------------------|--------------|--------------|---------------------------|------------------|------------------------------|---------|-------------|-------|
| | | | | | | Labor | Capital | Prof. Serv. | Total |
| 48 | Unified Communications Platform | Enterprise | Continuing | Deployment | Deployment | 0.05 | 0.45 | 0.15 | 0.65 |
| 49 | UPS Replacement | Enterprise | Continuing | Deployment | Study Complete | 0.09 | 1.15 | 0.00 | 1.24 |
| 50 | Windows System Upgrade | Enterprise | Continuing | Deployment | Deployment | 0.17 | 0.30 | 0.10 | 0.57 |

NYISO Scores & High Priority Project Constraints

NYISO Scores

| Item | Project | Product Area | Strategy | Operational or Market Issue | Cost & Complexity | Score (1-100) | Rank |
|------|---|--------------------------|----------|-----------------------------|-------------------|---------------|------|
| | | | 4 | 4 | 2 | | |
| 11 | Credit Price Spread Updates Virtual and External Transactions | Business & Finance | 6 | 7 | 6 | 64 | 1 |
| 13 | DER Operational Enhancements | New Resource | 8 | 7 | 1 | 62 | 2 |
| 2 | Block Storage Refresh | Enterprise | 5 | 10 | 0 | 60 | 3 |
| 24 | Meter Services System | Business & Finance | 6 | 6 | 6 | 60 | 3 |
| 27 | Network Manager Cisco Refresh | Enterprise | 5 | 10 | 0 | 60 | 3 |
| 30 | OMS Enhancement | Operations & Reliability | 5 | 7 | 6 | 60 | 3 |
| 4 | BTM Solar Demand Forecasting Product Enhancements | Planning | 6 | 5 | 7 | 58 | 7 |

NYISO Scores

| Item | Project | Product Area | Strategy | Operational or Market Issue | Cost & Complexity | Score (1-100) | Rank |
|------|---|--------------------|----------|-----------------------------|-------------------|---------------|------|
| | | | 4 | 4 | 2 | | |
| 25 | Modernizing ASIS | Enterprise | 5 | 7 | 5 | 58 | 7 |
| 28 | Next Gen Security Architecture | Enterprise | 7 | 5 | 5 | 58 | 7 |
| 29 | OASIS Reliability Upgrade | Enterprise | 5 | 7 | 5 | 58 | 7 |
| 32 | Ongoing TCC Collateral Coverage Assessment Tool | Business & Finance | 6 | 6 | 5 | 58 | 7 |
| 1 | Access Management Platform Upgrade | Enterprise | 3 | 8 | 6 | 56 | 12 |
| 3 | BSS and BillSim Upgrade | Enterprise | 4 | 7 | 6 | 56 | 12 |
| 8 | CMS and ConInvoice Data Integration | Business & Finance | 5 | 6 | 6 | 56 | 12 |

NYISO Scores

| Item | Project | Product Area | Strategy | Operational or Market Issue | Cost & Complexity | Score (1-100) | Rank |
|------|---|--------------------------|----------|-----------------------------|-------------------|---------------|------|
| | | | 4 | 4 | 2 | | |
| 20 | Krey Control Room A/V Replacement | Enterprise | 4 | 8 | 4 | 56 | 12 |
| 36 | Secure Communication Channel with MPs | Energy Market | 3 | 7 | 8 | 56 | 12 |
| 38 | Smart Grid Upgrade | Enterprise | 5 | 5 | 8 | 56 | 12 |
| 5 | Budgeting Tool | Business & Finance | 5 | 6 | 5 | 54 | 18 |
| 6 | Building Management System (BMS) Controls Upgrade | Enterprise | 3 | 9 | 3 | 54 | 18 |
| 9 | Contingency Analysis Results for Transmission Owner Situational Awareness | Operations & Reliability | 5 | 6 | 5 | 54 | 18 |
| 12 | Demand Forecasting Operational Reporting Enhancements | Planning | 4 | 7 | 5 | 54 | 18 |

NYISO Scores

| Item | Project | Product Area | Strategy | Operational or Market Issue | Cost & Complexity | Score (1-100) | Rank |
|------|---|--------------------------|----------|-----------------------------|-------------------|---------------|------|
| | | | 4 | 4 | 2 | | |
| 14 | Generator Modeling Database Enhancements | Planning | 4 | 7 | 5 | 54 | 18 |
| 21 | LFDR Upgrade and Enhancements | Planning | 5 | 6 | 5 | 54 | 18 |
| 23 | Market Validation, Reporting and Penalty Enhancements | Capacity Market | 3 | 7 | 7 | 54 | 18 |
| 31 | On-Boarding of New Resources | New Resource | 4 | 6 | 7 | 54 | 18 |
| 37 | Settlement Systems Effective Dating and Filtering of Billing Entities | Business & Finance | 5 | 5 | 6 | 52 | 26 |
| 7 | Carman Security Enhancements | Enterprise | 5 | 6 | 3 | 50 | 27 |
| 17 | Gurobi Upgrade | Operations & Reliability | 5 | 5 | 5 | 50 | 27 |

NYISO Scores

| Item | Project | Product Area | Strategy | Operational or Market Issue | Cost & Complexity | Score (1-100) | Rank |
|------|---|--------------------------|----------|-----------------------------|-------------------|---------------|------|
| | | | 4 | 4 | 2 | | |
| 26 | Natural Gas Notices Enhancement Project | Operations & Reliability | 3 | 6 | 7 | 50 | 27 |
| 16 | Grid Operations Web Forms Enhancements | Enterprise | 5 | 4 | 6 | 48 | 30 |
| 39 | Transaction Modifications API | Business & Finance | 4 | 6 | 4 | 48 | 30 |
| 10 | Control Room Logging Replacement | Operations & Reliability | 3 | 6 | 4 | 44 | 32 |
| 18 | ICAP Supplier Status Enhancements | Capacity Market | 1 | 6 | 7 | 42 | 33 |
| 40 | Watchlist for Rest of State Units | Energy Market | 3 | 3 | 9 | 42 | 33 |
| 33 | Outage States Portal Dashboard | Capacity Market | 2 | 5 | 6 | 40 | 35 |

NYISO Scores

| Item | Project | Product Area | Strategy | Operational or Market Issue | Cost & Complexity | Score (1-100) | Rank |
|------|--|--------------------------|----------|-----------------------------|-------------------|---------------|------|
| | | | 4 | 4 | 2 | | |
| 22 | Machine Learning Research and Technology Pilot | Enterprise | 4 | 2 | 5 | 34 | 36 |
| 15 | GFER Enhancements | Operations & Reliability | 2 | 3 | 6 | 32 | 37 |
| 34 | Price Correction Report Modifications | Operations & Reliability | 1 | 2 | 8 | 28 | 38 |
| 35 | Redundant Wind Solar Forecast Feed- Independent Vendor | Operations & Reliability | 1 | 3 | 6 | 28 | 38 |
| 19 | IT Development and Control of Compliance Reports | Operations & Reliability | 1 | 4 | 3 | 26 | 40 |

High Priority Project Constraints

- Resource constraints have been identified for some implementation teams with three Continuing projects: Application Platform Upgrade, CRIS Tracking, and DER Operational Enhancements
- Projects ranked up to 12 appear to be supportable
- The NYISO has identified resource constraints starting with projects ranked 18 and higher for multiple teams

Next Steps

Next Steps

- **Deadline for completing scoring survey will be June 17th**
- **Contact Brian Hurysz or Member Relations for any survey related issues**
 - Send to Brian Hurysz at bhurysz@nyiso.com or cell (518) 461-6405 for assistance
- **Stakeholder scoring and high priority project constraints results will be presented at the July 12th BPWG**

Our Mission & Vision



Mission

Ensure power system reliability and competitive markets for New York in a clean energy future



Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation

Questions?

Appendix – Milestones and Project Prioritization Phases

Milestone Definitions

| Milestone | Definition |
|--|--|
| Issue Discovery | NYISO has facilitated education session(s) for stakeholder knowledge development of problem/issue, conducted stakeholder solicitation of potential solutions to address problem/issue, and summarized findings at a working group meeting for potential ranking and future project identification. |
| Study Defined | The scope of work for the study has been presented to stakeholders, including a discussion on the necessary input(s), assumption(s) and objective(s) of the study. |
| Study Complete | Scope of work to be performed has been completed; results and recommendations have been presented to the appropriate Business Owners and stakeholders. |
| Market Design Concept Proposed | NYISO has initiated or furthered discussions with stakeholders that explore potential concepts to address opportunities for market efficiency or administration improvements. |
| Market Design Complete | NYISO has developed with stakeholders a market design concept such that the proposal can be presented for a vote at the BIC or MC to define further action on the proposal. |
| Functional Requirements | NYISO has completed documentation of the functional requirements and the Business Owner has approved. |
| Architectural Design | The architectural design document is complete and software development is ready to begin. |
| Projects with the following Milestones will generally be proposed as Continuing in future years, subject to Stakeholder input | |
| Software Design | The software design document is complete and software development is ready to begin. |
| Development Complete | Development has been completed, packaged and approved by the Supervisor. |
| Deployment | Required software changes to support commitment have been integrated into the production environment. |

Project Prioritization Process

| Phase | Description |
|------------------------------------|--|
| Stakeholder Project Identification | Stakeholders may present project ideas at stakeholder meetings, sector meetings, get feedback and refine their proposal during this phase before the NYISO provides a comprehensive list of candidate projects for consideration. |
| Identification | The NYISO develops a Markets and Enterprise project candidate lists from regulatory obligations, strategic initiatives, State of the Market recommendations, infrastructure enhancements, product plans and stakeholder proposals. These are presented and further refined with stakeholder input during this phase. |
| Prioritization | This phase involves a stakeholder survey and the NYISO prioritization of projects. The stakeholder survey will facilitate an assessment of the relative priority of the topic within the portfolio and is used to determine stakeholder appeal. The NYISO prioritization incorporates the stakeholder appeal into objective criteria that reflects strategic alignment, expected outcomes, risks, and ability to execute in development of a priority score for each Market project. |
| Evaluation | This phase involves performing a feasibility assessment based on detailed cost and labor estimates, dependencies, priority scores, and stakeholder feedback. |
| Recommendation | This phase involves proposing a feasible set of project deliverables and related budget requirements. The proposal is refined as needed based on stakeholder feedback. |

Project Type

| Project Type | Description |
|--------------|--|
| Mandatory | Strategic Initiatives and FERC Orders. These projects will be included in the budget |
| Continuing | Approved in a prior year and have progressed to either Software Design, Development Complete, or Deployment. Additional projects may be classified as Continuing based on stakeholder feedback. These projects will be included in the budget |
| Future | Consensus from stakeholder discussions of this projects priority relative to other projects has resulted in these projects NOT being prioritized and initiated in the coming budget year. Resources, time constraints, stakeholder feedback, and other project dependencies have been taken into consideration |
| Prioritize | Projects to be prioritized and included in the budget based on a feasibility assessment taking into consideration resources, time constraints, stakeholder feedback, priority score, and other project dependencies. Market projects are included in the stakeholder survey |

Project Category

| Project Category | Description |
|------------------|--|
| Enterprise | Includes internal-facing technology and back office support projects that have no market rule changes. This list includes projects that may be noticeable to Market Participants. These projects are NOT included in the stakeholder survey |
| Market | Projects associated with market rule(s) including market design and study projects as well as any project implementing market rule changes. These projects are included in the stakeholder survey unless they are Mandatory, Continuing, or Future |

Project Scoring

| Project Scoring | Description |
|--------------------|--|
| NYISO Only | Enterprise projects that are not Mandatory, Continuing, or Future types are scored by the NYISO Only during the Prioritization phase. These projects are included in the budget based on a feasibility assessment taking into consideration resources, time constraints, priority score and other project dependencies. |
| Stakeholder Scored | Market projects that are not Mandatory, Continuing, or Future are included in the stakeholder survey and scored by the NYISO during the Prioritization phase. These projects are included in the budget based on a feasibility assessment taking into consideration resources, time constraints, stakeholder feedback, priority score, and other project dependencies. |