

Peak Reliability

Transitional RC Overview

Maximizing Reliability – Minimizing Risk

April 11, 2018



PEAKRELIABILITY
assuring the wide area view

Today's Discussion

- Introductions
- Current RC Performance
- Transitional RC
 - Strategic Drivers
 - Services
 - Cost
- Q & A



Introductions

- Terry Baker – Managing Director of Operations
- Brett Wangen – Chief Engineering and Technology Officer
- Dick Garlish – VP and General Counsel
- Pete Hoelscher – Chief Strategy Officer



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Current Performance

- Continuous Commitment to Reliability
- Real-Time Operations
- Engineering
- IT
- Tools
- Operational Excellent Days

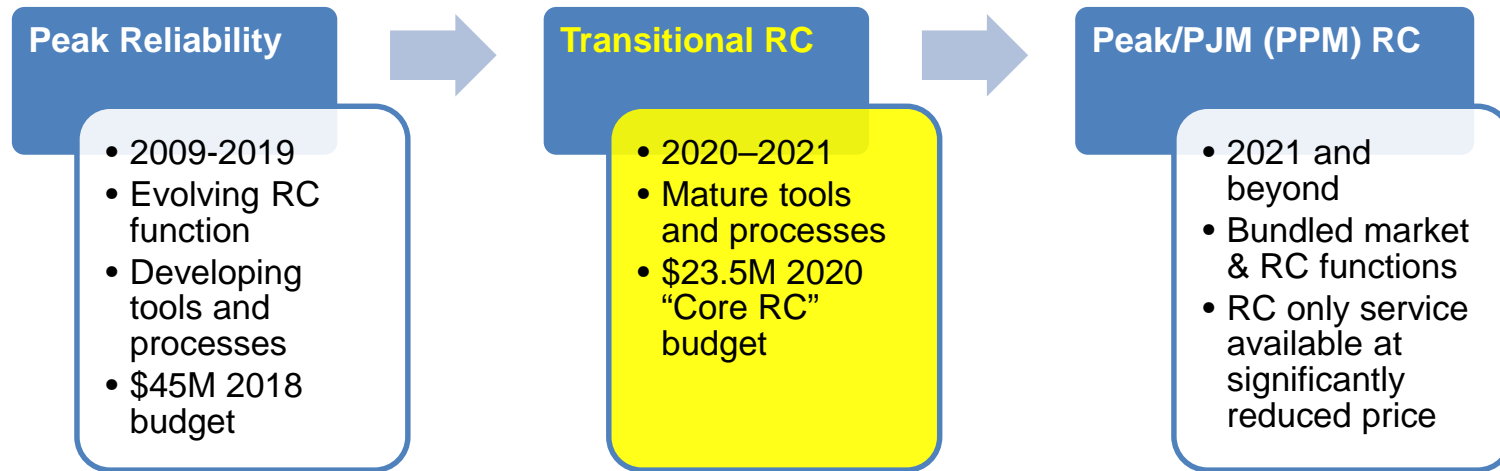


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Transitional RC – Strategic Drivers



- Enables a “Wait Option” for market operators to mature
 - Peak/PJM
 - SPP
 - CAISO
- Minimizes risk to reliability
- Best approach to retain and redeploy talent

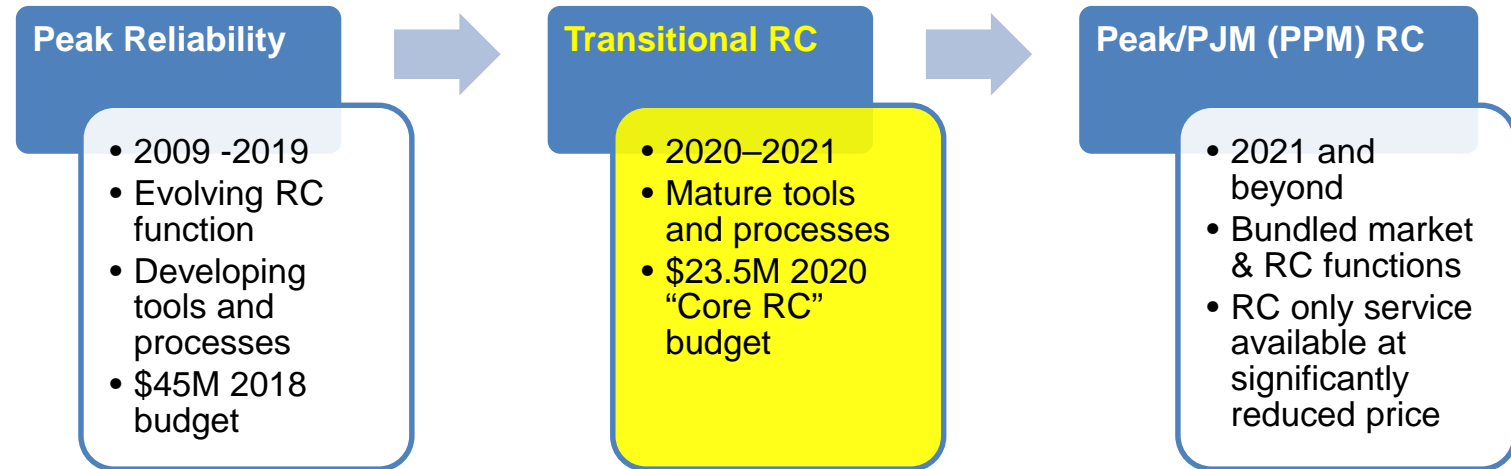
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Transitional RC – Services

- Most effective mechanism to transition reliably to future market/reliability providers
 - High degree of reliability
 - Best RC System Operators in the West
 - No risks related to switching (cost, compliance)
 - Almost a decade of growth, innovation and operations in the West



Transitional RC – Services

- Services include:
 - Core RC Services – “Primary” functions to ensure reliability and meet NERC standards
 - Customers: BAs and TOPs
 - Optional Reliability Services – Important services but not directly tied to RC function such as HAA and WIT
 - Customers: BAs and TOPs
 - Interconnection Shared Services – Services that support reliable and efficient operations in the entire Western Interconnection such as: RMT, ECC, WIT
 - Customers: CASIO, AESO, SPP RCs



Transitional RC – Core Services

- Core RC services include:
 - Meet all RC related NERC standards
 - Core set of operator wide area tools – EMS, PI, COS
 - SOL methodology
 - Operational Planning Analysis
 - Outage Coordination
 - IROL identification and coordination
 - Real-time Assessments
 - Restoration
- Maintains current reliability



Transitional RC – Core Services

Core Reliability Coordination Services

Core RC	\$23.5 million	Total “base” RC cost that all Peak RC service takers must pay.
Reliability Messaging Tool (RMT)	Included in Core RC	RMT supports RC, TOP and BA real-time communication and coordination.
Coordinated Outage Scheduling Tool (COS)	Included in Core RC	COS is the primary tool for coordinating scheduled transmission and generation outages in the Western Interconnection.
Voltage and Transient Stability	Included in Core RC	IROL and stability limit calculations and monitoring.
DTS – Interconnection Simulation	Included in Core RC	Dispatcher Training Simulator hosted RCSO training, restoration drills, IROL drills and other simulation-based training for the RC Area.
SharePoint Coordination	Included in Core RC	Use of Peakrc.org for coordinating data, such as studies, TOP/BA data requests, models, etc.

Individual entity cost allocation determined by number of participants



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Transitional RC – Optional Services

- **Bucket 1 – TOP/BA services, “à la carte”**
 - Hosted Advanced Applications
 - NWPP tools – Regional Flow Forecast
- **Bucket 2 – Non-core tools or services**
 - WECC Interchange Tool (WIT)
 - Enhanced Curtailment Calculator (ECC)
 - EHV/ICCP real-time operational data sharing
 - Synchrophasor tools
 - Peak Visualization Platform (geospatial interconnection monitoring)



Transitional RC – Optional Services

Optional Reliability Services		
WIT	\$575,000	WECC Interchange Tool supports all BAs in managing scheduled interchange.
EHV/ICCP Management	\$60,000	Real-time operational data sharing system used by TOPs, BAs and RCs.
ECC	\$925,000	Enhanced Curtailment Calculator manages Qualified Paths and is being expanded to incorporate other facilities in the Western Interconnection.
Synchrophasor Technology	\$520,000	Synchrophasor technology supports wide-area situational awareness across the entire Western Interconnection.
Peak Visualization Platform (PVP)	\$250,000	Geo-spacial visualization tool. PVP allows weather, fire and other non-electrical information to be monitored on power system situational awareness displays.

Individual entity cost allocation determined by number of participants



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Transitional RC – Shared Services

- Offered to other RCs in the West
 - Tools/Services that are used and valued by BAs, TOPs or RCs outside of Peak's RC Area
 - Provided at a cost to other RCs
- How do they add value to other RCs?
 - Reduce duplication of tools and projects
 - Continues a focus on reliability for the entire Western Interconnection



Transitional RC – Shared Services

Shared and Optional Services for RC Service Providers

Reliability Messaging Tool (RMT)	\$200,000	RMT supports RC, TOP and BA real-time communication and coordination.
Coordinated Outage Scheduling Tool (COS)	\$325,000	COS is the primary tool for coordinating scheduled transmission and generation outages in the Western Interconnection.
Voltage and Transient Stability	\$260,000	Additional services such as TTC calculation engine, frequency response monitoring and system model validation.
Dispatcher Training Simulator – Interconnection Simulation	\$375,000	Restoration drills, IROL drills and other simulation-based training for the Interconnection.
SharePoint Coordination Services	\$190,000	Use of Peakrc.org for coordinating data, such as studies, TOP/BA data requests, models, etc.
WIT	\$375,000	WECC Interchange Tool supports all BAs in managing scheduled interchange.
EHV/ICCP Management	\$40,000	Real-time operational data sharing system used by TOPs, BAs and RCs.
ECC	\$600,000	Enhanced Curtailment Calculator manages Qualified Paths and is being expanded to incorporate other facilities in the Western Interconnection.
Synchrophasor Technology	\$340,000	Synchrophasor technology supports wide-area situational awareness across the entire Western Interconnection.
Peak Visualization Platform (PVP)	\$170,000	Geo-spatial visualization tool. PVP allows weather, fire and other non-electrical information to be monitored on power system situational awareness displays.

Cost allocation determined by number of RC participants



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Transitional RC – Services

- Revenue Requirement
 - Core RC \$23.5M
 - Optional Services \$2.3M
 - Interconnection Shared Services* \$2.9M

- **Total Revenue Requirement = \$28.7M**

*Interconnection Shared Services offered to other RCs in the West.



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Transitional RC – Services

- Cost savings
 - Board seats reduced to three
 - Executive team reductions
 - Vendor contract savings
 - Harris network, EMS
 - FTEs, licenses, maintenance, hardware
 - Reduction in Peak’s “innovative capacity”
 - Changes in operational scope



Summary

- A Transitional RC provides for:
 - Enables a “Wait Option” for market operators to mature
 - Peak/PJM
 - SPP
 - CAISO
 - Minimizes risk to reliability
 - Best approach to retain and redeploy talent
 - Transparency and certainty for costs
 - A known level of performance and reliability
 - Continued use of Western tools and technology



Next Steps

- Engage Western stakeholders
- Invite comments and questions on our website – www.peakrc.com
 - White-paper on Transitional RC currently posted
 - Will post a strawman a proposal on how the Transitional RC could be implemented on May 21
- Asking for commitments in November



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Q & A



Glossary of Acronyms

- BA Balancing Authority
- BES Bulk Electric System
- COS Coordinated Outage System
- DTS Dispatch Training Simulator
- ECC Enhanced Curtailment Calculator
- EMS Energy Management System
- HAA Hosted Advanced Applications
- ICCP Inter-control Center Communication Protocol
- IROL Interconnection Reliability Operating Limit
- PVP Peak Visualization Platform
- RMT Reliability Messaging Tool
- SOL System Operating Limit
- TOP Transmission Operator
- TTC Total Transfer Capacity
- WIT WECC Interchange Tool

