

ColumbiaGrid Annual Update for the Washington Utilities and Transportation Commission

AUGUST 27, 2018

Why Are We Here Today?

COLUMBIAGRID'S STATE REGULATORY AGENCIES COLLABORATIVE INVOLVEMENT

GOAL: To foster the collaborative involvement of States, including agencies responsible for facility siting, utility regulation, and general electricity policy in the ColumbiaGrid planning and policy process.

Topics

- Corporate Overview
- Scope and Benefits of Various Transmission Planning Entity Structures
- Corporate Performance:
 - Costs
 - Core Benefits / Services
 - Non-Core Benefits / Services
- Reliability Transmission Expansion Planning
- Order 1000
- Western Interconnection Coordination

Where Did the Northwest's 'Regional Planning' Entities Come From?

circa December 2005 – Grid West, Transmission Improvements Group (TIG), and BPA's Integration Proposal (to create a hybrid of Grid West and TIG) all fail

March 31, 2006 – ColumbiaGrid is Incorporated; Members are the primary advocates of the Integration Proposal; ColumbiaGrid's structure, governance, and Bylaws similar to the Integration Proposal

January 17, 2007 - Planning and Expansion Functional Agreement ("PEFA")

February 16, 2007 - FERC Order 890 Final Rule

Spring 2007 – Northern Tier Transmission Group's regional planning developed; NTTG is an association, not a corporation; Members are the primary opponents of the Integration Proposal; and NTTG is similar to TIG

January 16, 2008 - PEFA First Amendment

December 16, 2009 - PEFA Second Amendment

July 21, 2011 - FERC Order 1000 Final Rule (May 17, 2012, Order 1000-A: October 18, 2012, Order 1000-B)

January 1, 2015 – ColumbiaGrid implemented Order 1000 Planning

June 1, 2015 – The Four Western Planning Regions' jurisdictional Members, including ColumbiaGrid's Order 1000 Parties (Avista and PSE), received FERC approval of Order 1000 Interregional planning

November 2015 (Member-Led Activity) – ColumbiaGrid's and NTTG's Members began Regional Planning Organization (RPO) effort

May 12, 2016 – ColumbiaGrid's Order 1000 Parties (Avista and PSE) received FERC approval of Order 1000 regional planning



Corporate Governance

- **ColumbiaGrid** is a non-profit membership corporation (501 (c)(6)) with an independent Board of Directors, Officers, and staff; the corporation is not under jurisdiction of FERC, NERC, WECC, or State PUCs.
- **Member-Driven:** Members control Bylaws; Members select Directors; Members negotiate and approve Functional Agreements; Members and PEFA Parties determine maximum funding limits
- **Corporation:** Directors, Officers, and Staff – administer the Bylaws; set and perform to budgets; manage the corporation’s operations; administer contracts; deliver benefits / services; enhance benefits by improving existing services; innovate and develop new services



Members and Planning Participants



- Avista Corporation
- Bonneville Power Administration
- Chelan County PUD
- Cowlitz County PUD*^
- Douglas County PUD*
- Grant County PUD
- Puget Sound Energy
- Seattle City Light
- Snohomish County PUD
- Tacoma Power
- *[ColumbiaGrid is also the Area Coordinator for NERC/WECC Region 40, which includes PacifiCorp West and Portland General Electric]*

* Non-Member PEFA Planning Participants

^ Withdrawing from PEFA Dec. 31, 2018

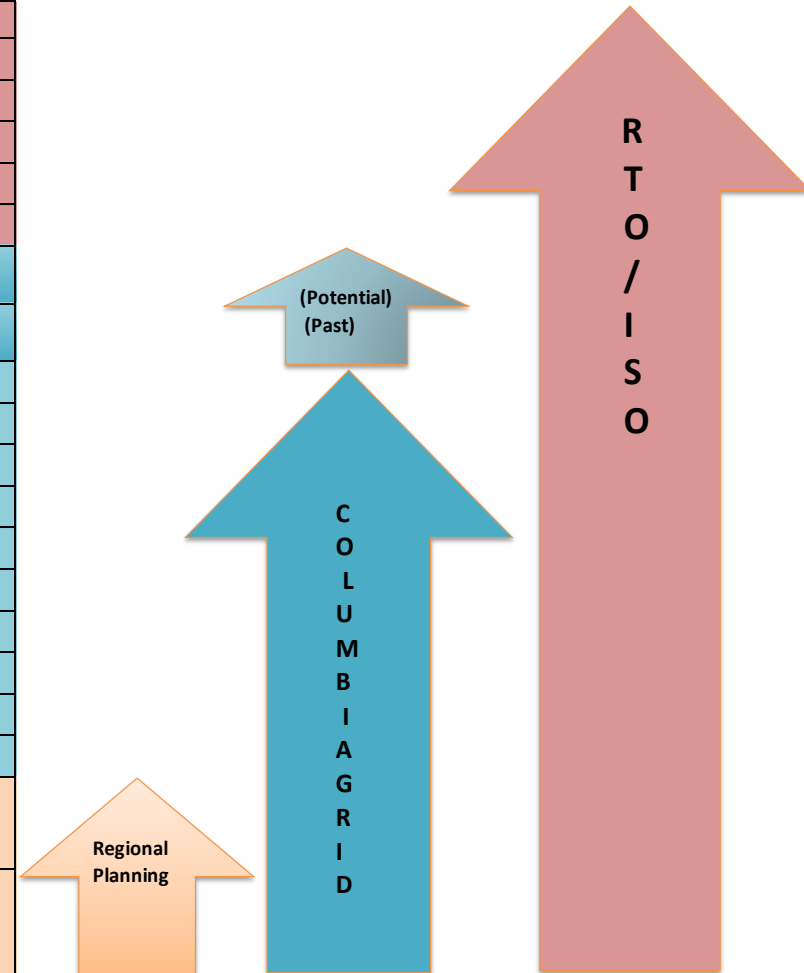


Corporate Approach

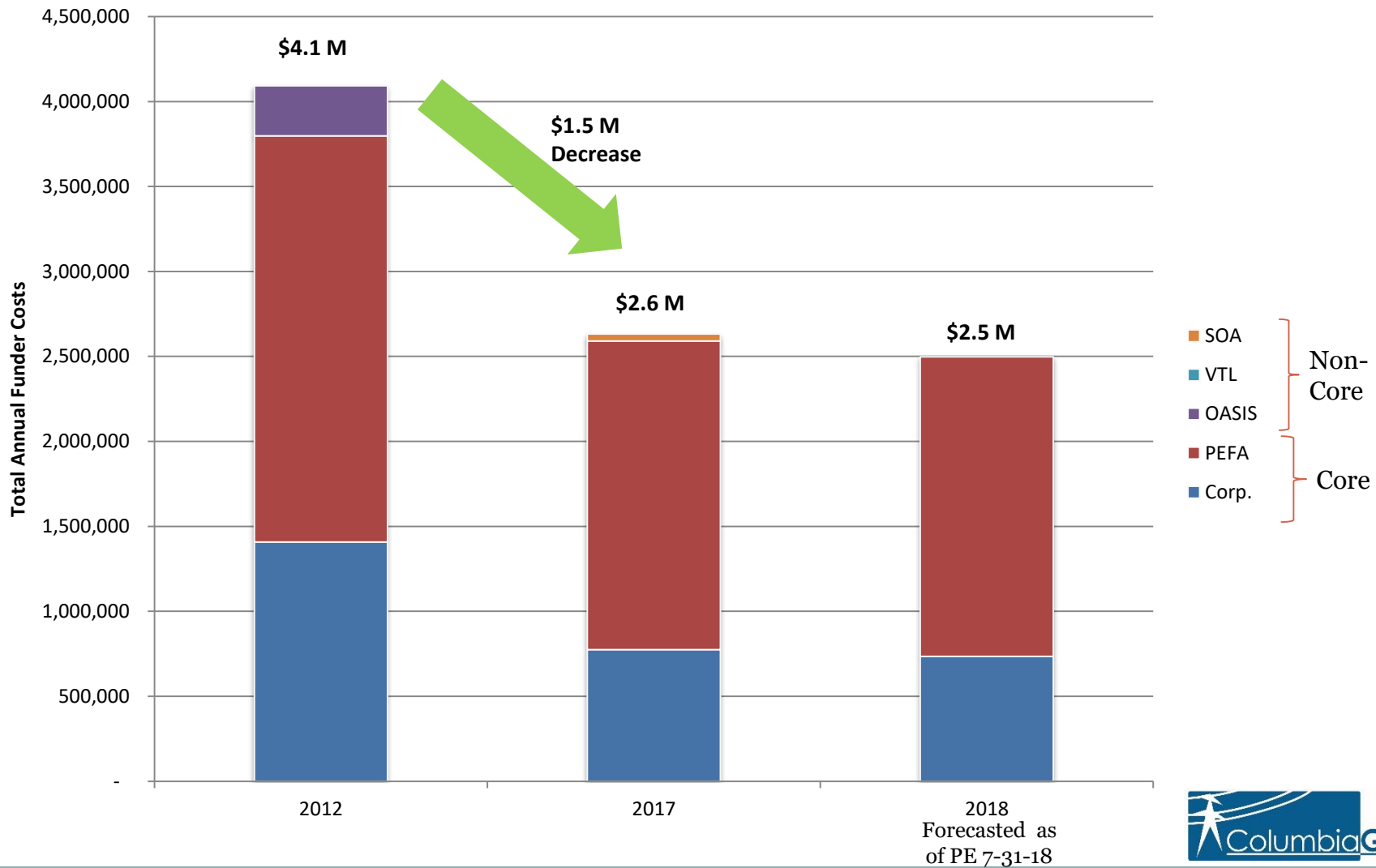
- **CORE Business**: Ensure Regional Grid Reliability Via Independent Centralized and Collaborative Grid Expansion Planning:
 - Single-System View; Reliability Focus
 - Independent System Assessments (i.e. Problem Areas and Needs); Coordinate with Parties
 - Independent Sensitivity Analyses; Collaborate on Concerns
 - Work Together to Develop Reliability System Solutions via Additions and Upgrades (i.e. the Joint Long-Term Plan)
 - Regulatory Overlays for FERC Order Nos. 890 and 1000 are add-ons to Core Mission
 - Continuous Enhancements, Improvements, and Efficiency
- **Non-CORE Business**: Leverage Core Strengths to Provide New Benefits via Added Services and Enhancements

Scope Matters - Varies Widely among 'Regional Planning' Entities

Reliability Coordination
Market Operation
Public Policy Initiatives
Competitive Bidding
Full OATT Services (Wheeling)
Transmission Operations
Limited OATT Services
Limited OASIS Services
Independent Special Studies and Special Projects
Independent Transmission Planning, Administration, Enhancements & Management
Independent NERC Compliance Support and Analyses
Area Coordination
Independent Benefits Determinations and Transmission Cost Allocations
Independent Coordination & Development of Reliability Projects
Independent Reliability Assessment
Independent Staff
Independent Board of Directors
Corporation
Order 1000 - Regional Public Policy Requirements, Cost Allocation, Removal of Federal Right of First Refusal, Level Playing Field Incumbents/Non-Incumbents
Order 890 - Transparency, Coordination, Openness, Information Exchange, Comparability, Dispute Resolution, Regional Participation, Cost Allocation, Economic Planning Studies & High Priority Study Requests



Decreasing Costs

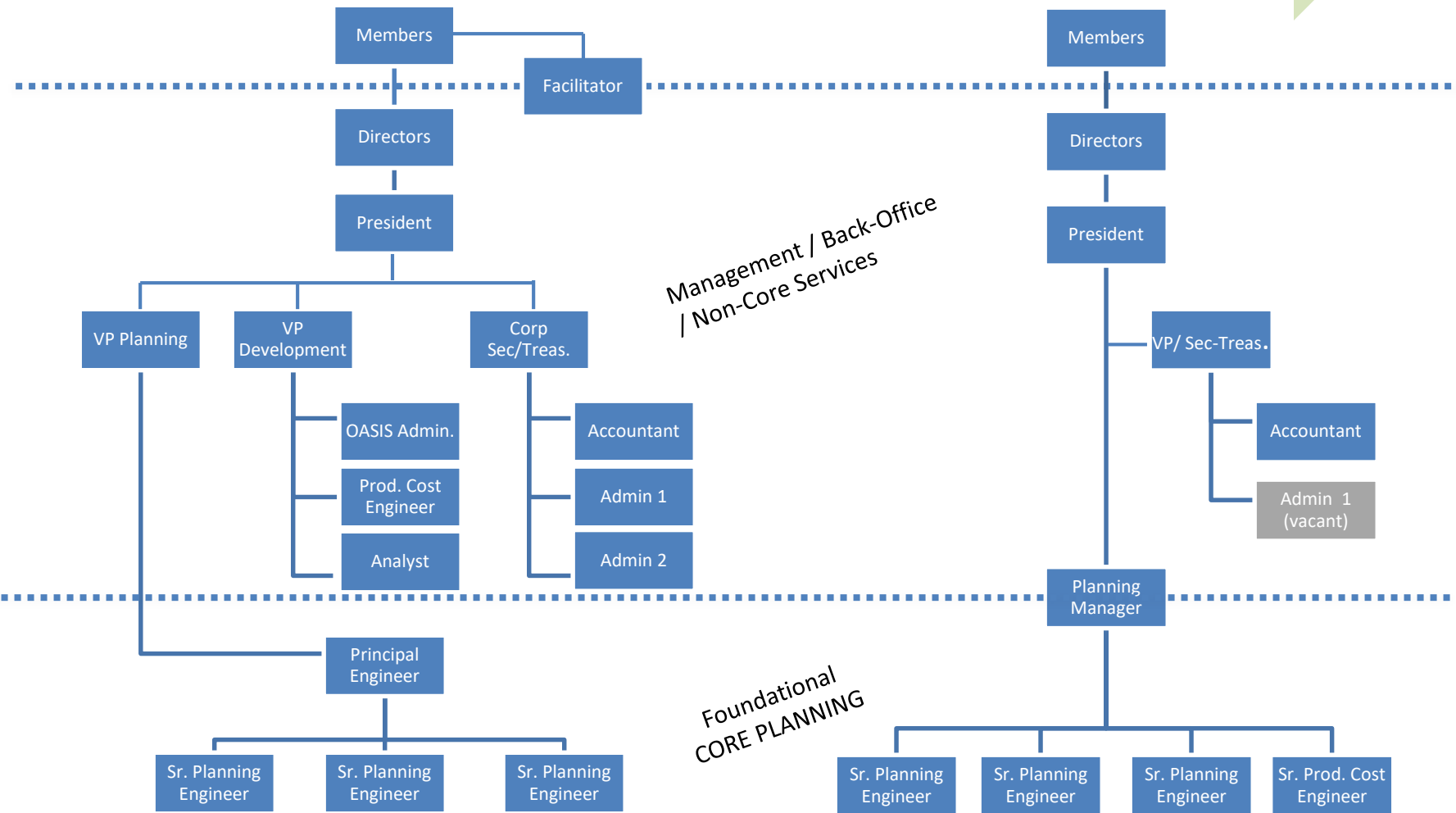


ColumbiaGrid's Organization



2012

2018



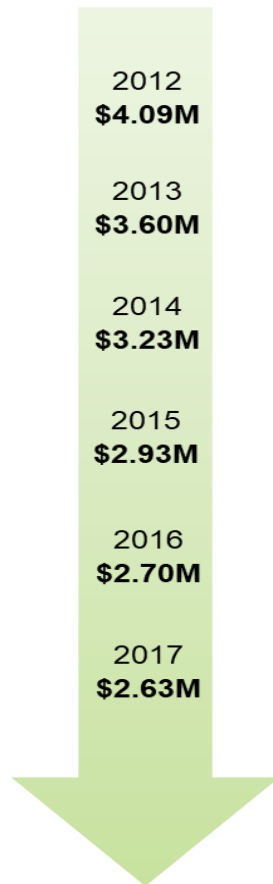
14 Employees + 1 Facilitator

8 Employees



Costs DOWN / Benefits UP

Costs to Funders



CORE 'In-Program' Planning Enhancements in 2018

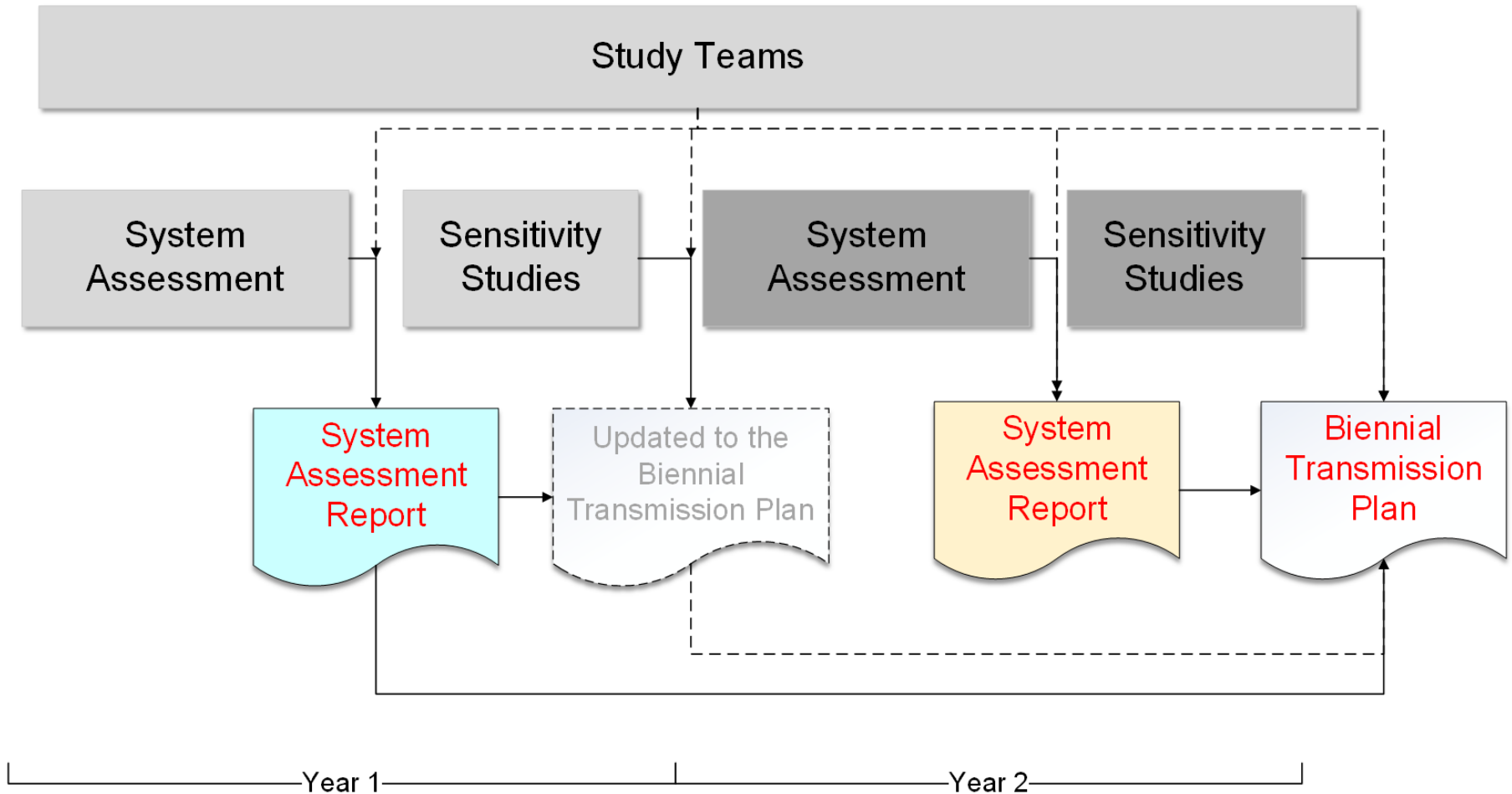
- **Steady-State and Dynamic System Model Validation (MOD-033)**
 - Compare the results from computer simulation with actual events. A major outage in 2007 (involved loss of Colstrip units) was used as a reference
- **Relay Performance during Stable Power (PRC-026)**
 - Evaluate performance of relays in the system
- **Geomagnetic Disturbance (TPL-007)**
 - Determine the amount of the Geomagnetic Induced Current (GIC) and evaluate system vulnerability due to GMD events
- **N-1-1 study evaluates potential impacts from the combination of contingencies** (Supports PRC-026 and TPL-001-4 compliance)
 - Simulate many combinations of contingencies
- **Economic Planning (15 Year) Study** (utilizes production cost modeling and then power flow as needed)
 - Assessment of potential future system conditions such as impacts from CA 50% RPS, Southwest retirements



Non-CORE Added Benefits in 2018

- CIP-014 Critical Energy Infrastructure Physical Security – 30-Month Reviews
 - Separate Functional Agreement to Perform Independent Third-Party Verifications and Analyses of Participants Critical Infrastructure Facilities: Transmission Stations; Transmission Substations; Associated Primary Control Centers

ColumbiaGrid Transmission Planning Process – Reliability Focus



Biennial Transmission Expansion Plan (BTEP)

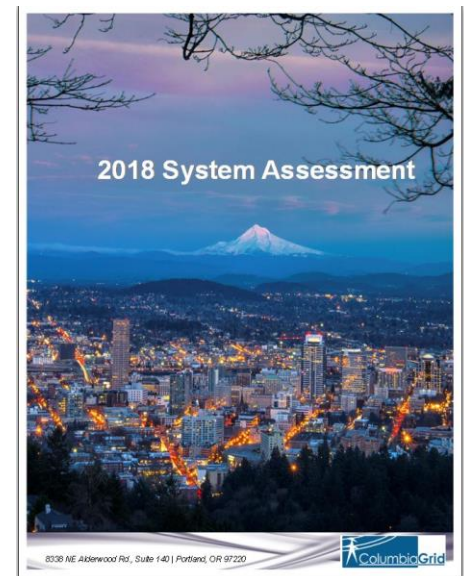


- The latest BTEP was issued in February 2017
- No updated BTEP was issued in 2018 due to no major change identified in 2017
- \$2.4B, 37 projects, new transmission investment in ColumbiaGrid planning region
- Summary of key findings, 10 year plan and updates for planning activities in 2017-2018
- The next BTEP will be issued in February 2019



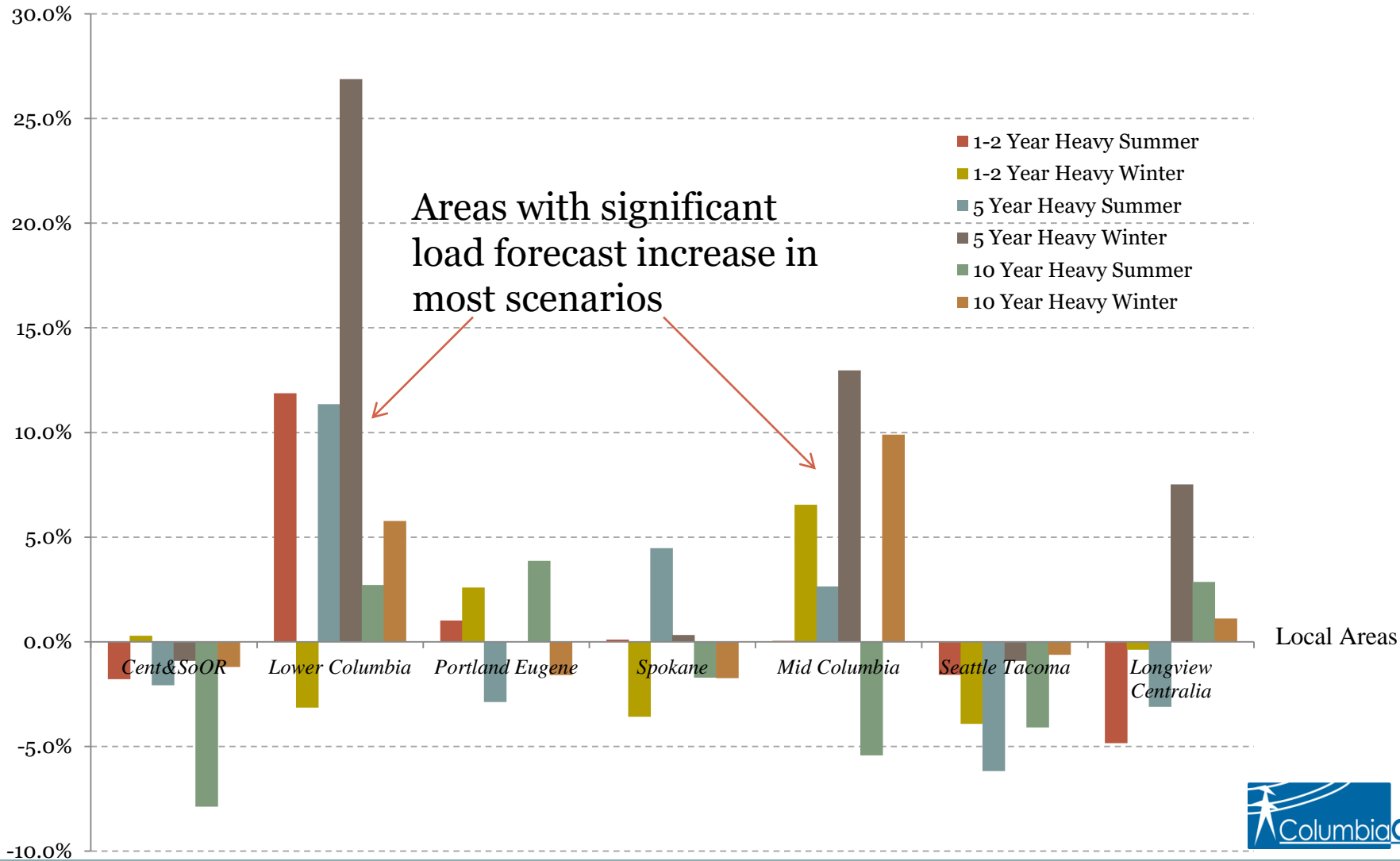
2018 System Assessment and 2019 BTEP

- Open stakeholder process
- Single Process - PEFA and Order 1000 Agreement
- Focus on reliability assessments, with additional production cost simulation for enhanced insights
 - 2018 System Assessment identified NEW reliability issues in Mid Columbia Area
- Long-Term System Reliability (10-year horizon):
 - 2018 System Assessment (Needs Identification)
 - Sensitivity Studies and Special Studies, to fine tune Needs
 - 15 Year Study to test trajectory of 10 Year planning horizon
 - Study Teams to identify and design solutions to meet Needs

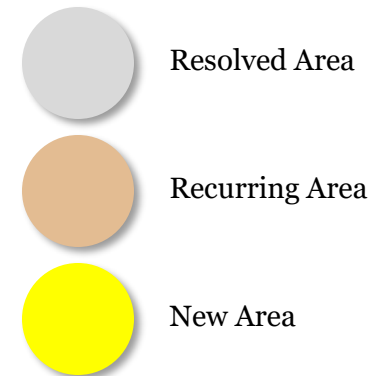


2018 SA: Local Load Varies Significantly

Load comparison



2018 System Assessment



Quincy Study Team (New in 2018)

- Addresses impacts from higher load forecast in the Middle and Lower Columbia Area
- Participants: Grant PUD, Chelan PUD, Douglas PUD, BPA, PSE



FERC Order 1000

- A new biennial cycle for FERC Order 1000 interregional planning started on January 1, 2017
- Key Order 1000-related activities in 2018
 - February 2018: 2018 Order 1000 Annual Interregional Coordination Meeting (AICM) was held in Folsom, CA
 - No Order 1000 Potential Needs in ColumbiaGrid Order 1000 Region nor ITP submissions

FERC Order 1000

- Six Interregional Transmission Projects (ITPs) were submitted in the Western Interconnection to some of the Four Western Planning Regions; ColumbiaGrid is not a Relevant Planning Region in any of the ITP submittals

No	ITP Name	Submitted to	Project Proponent
1	TransWest DC	NTTG, WestConnect	TransWest Express LLC
2	TransWest AC/DC	NTTG, WestConnect	TransWest Express LLC
3	SDG&E HVDC Conversion	CAISO, WestConnect	San Diego Gas and Electric
4	TransCanyon Cross-Tie	NTTG, WestConnect	TRANSCANYON
5	SWIP North	CAISO, NTTG, WestConnect	Great Basin Transmission
6	North Gila-Imperial Valley #2	CAISO, NTTG, WestConnect	ITC Grid Development

Western Interconnection Planning Coordination

- ColumbiaGrid participates in two types of Western Interconnection coordination:
 - 1) Other planning regions: CAISO, NTTG, WestConnect (share information, findings, Interregional Transmission Projects)
 - 2) Regular coordination with WECC regarding base case development and other processes; ColumbiaGrid is the Area 40 Coordinator to submit data to WECC including submitting data for PacifiCorp West and Portland General Electric

Questions

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