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June 4, 2013

MEMORANDUM

TO: Council Members

FROM: Brian Dekiep, Montana Council Staff

SUBJECT: Transmission Planning Presentation

Within the umbrella of the Western Energy Coordinating Council there are four regional transmission planning groups. These groups include Northern Tier Transmission Group (NTTG), Columbia Grid, California ISO and West Connect. One of the primary goals of these transmission planning groups is to promote efficient transmission planning under the Federal Energy Regulatory Commission's (FERC) Orders 890 and 1000. At the November 2012, Council meeting, Council members heard from the Northern Tier Transmission Group and the Columbia Grid regarding their current activities. This is a continuation of those presentations and an update regarding activities of the Northern Tier Transmission Group.

John Leland, Manager of Regional System Planning and Engineering at Northwestern Energy in Montana and acting Chair of the Northern Tier Transmission Group Planning Committee, will give an overview of transmission planning under FERC Orders 890 and 1000 as it relates to NTTG. Mr. Leland will also be giving an update on the progress of NTTG's biennial plan as well as reviewing the economic/congestion study requests submitted to NTTG.

Brian Dekiep, Montana Council Staff will give a brief summary of key cost allocation issues resulting from FERC's May 17, 2013, Order on NTTG's Order 1000 compliance filing.¹

¹ NTTG members filed their regional compliance for Order 1000 on October 10, 2012 if FERC. NTTG members filed their interregional compliance on May 10, 2013.

Biography of John Leland

Manager, Regional System Planning and Engineering, NorthWestern Energy

June 4, 2013

Mr. Leland responsibilities include transmission planning for new generation and transmission projects connecting to NorthWestern Energy's transmission system, representing NorthWestern in regional committees and participant in developing NorthWestern Energy's response to state and federal regulatory orders and filings. Mr. Leland is the current chair of the Northern Tier Transmission Group transmission planning committee.

Order 1000 Regional Cost Allocation Northern Tier Transmission Group

**Northwest Power and Conservation Council
Missoula, MT
June 11, 2013**

**Brian Dekiep
Montana Council Staff**

"The views expressed are those of the Council staff from Montana and do not represent the Council as a whole. The Council has not approved these remarks, and the views expressed should not be attributed to the Council [except for points directly from the Council's regional power plan or fish and wildlife program]."



1

Order 1000 Cost Allocation Highlights:

FERC Order 1000 requires that each public utility transmission provider participate in a regional transmission planning process that has:

- (1) A **Regional** cost allocation method or methods for the cost of new transmission facilities selected in a regional transmission plan for purposes of cost allocation; and
- (2) an **Interregional** cost allocation method or methods for the cost of new transmission facilities that are located in two neighboring transmission planning regions and are jointly evaluated by the two regions in the interregional transmission coordination procedures required by Order No. 1000. Order No. 1000 also requires that each cost allocation method satisfy six cost allocation principles.



2

The following is a summary of key issues from the
FERC's May 17th Order on the NTTG Regional filing.

Eligibility Requirements:

- Pre-Qualification Process: The project and the sponsor must meet appropriate qualification criteria to request the project be considered for cost allocation.
- FERC rejected Filing Parties requirement that in order for a transmission project to be selected in the regional transmission plan for purposes of cost allocation the transmission project must be proposed for such purposes by a pre-qualified transmission developer. (Par. 268)
- Order No. 1000 recognized that entities that do not intend to develop a proposed transmission project may still submit that transmission project for purposes of cost allocation and have it studied accordingly in the regional transmission planning process.



3

Cost Allocation Order 1000

• Evaluation Metrics (FERC approved these metrics)

1. Change in annual capital-related costs. (Par. 241; requires more detail)
2. Change in energy losses approved in (Par. 240)
3. Change in reserves (Par. 240)

Filing Parties are directed to submit further compliance filings, within 120 days of the date of issuance of this order, revising their OATTs to:

- (1) include a minimum set of benefit metrics that *will* be applied to every transmission facility selected in the regional transmission plan for purposes of cost allocation and
- (2) set forth a transparent method for calculating changes in annual capital-related costs, energy losses, and reserves. (Par. 261)



4

Cost Allocation Process:

- **NTTG uses a three step process to allocate costs**

(FERC ruled that NTTG partially complies)

1. Identify entities that may be affected by the project based upon initial benefit metric calculation
2. Adjust, as appropriate, the initial net benefits
 - a) Net benefits attributed to any scenario are capped at 150% of the average of the unadjusted. (Par. 245-246, justify cap or remove from tariff)
 - b) If the average of the above adjusted net benefits across the allocation scenarios is negative, the average net benefits to that beneficiary is set to zero;(explain why setting to zero. (Par. 246&254)
 - c) Based on the above adjusted net benefits across the allocation scenarios, if the ratio of the standard deviation to the average is greater than 1.0, the average net benefit to that beneficiary is set to zero. (Par. 247, need to justify this ratio.)
3. Cost Allocation Committee uses the adjusted net benefits calculated above to allocate project costs proportionately to each identified beneficiary. Each identified beneficiary will have meet or exceed a 1.10 Cost to benefits ratio to be allocated any costs.



5

Production Cost Modeling:

- Production Cost Modeling (PCM) was considered as an economic metric for production cost savings but not incorporated at the time of the compliance.
- NTTG will evaluate and report to the FERC on PCM in mid-2013 in advance of the 2014 Biennial planning cycle.
- FERC is not requiring NTTG to use PCM and encourages continued exploration of additional metrics and tools for Cost Allocation. (Par. 215&242)



6

Other issues of Importance:

- FERC found that the proposal to not allocation *de minimis* costs (<\$2M) would result in an allocation of costs in a manner that is at least roughly commensurate with estimated benefits. However, parties need to explain how the costs that would otherwise be assigned to an identified beneficiary allocated less than 2 million will be allocated. (Par. 248)
- FERC directed NTTG parties to address cost of upgrades in other planning regions that benefit NTTG parties as well as cost of upgrade within NTTG that benefit parties outside of NTTG. (Par. 259)



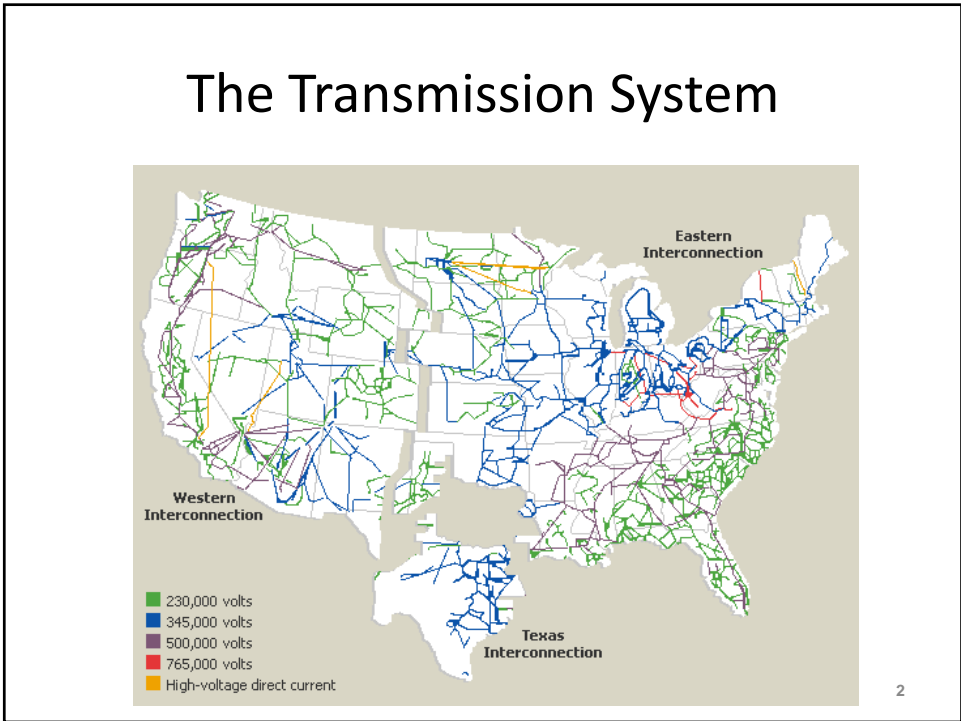
Questions, comments
and follow-up?

bdekiep@nwcouncil.org



Transmission Planning
 Northwest Power and Conservation Council
 June 11, 2013





Successful Planning Is Not This

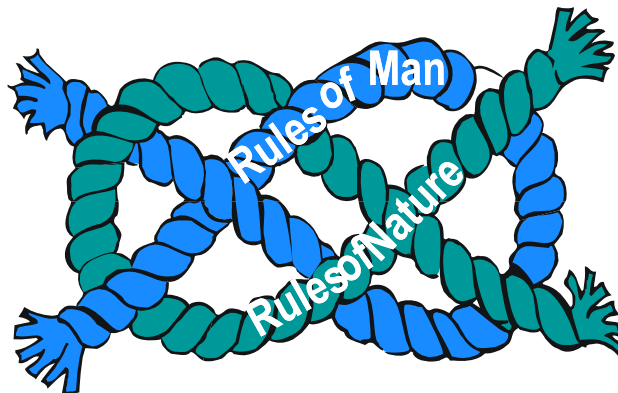


"And then one day the grid went down and never came back up."

3

Transmission Planning

Art or Science?

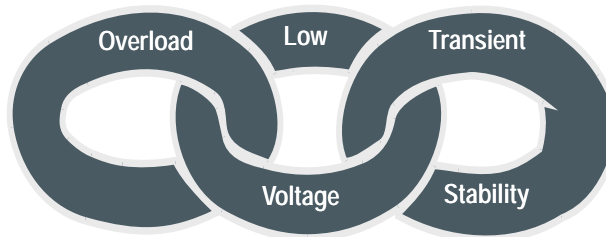


Transmission planning is a mix of art and science

4

The Science

Find the weakest link in the transmission system



Computer models of the western interconnection (WECC)

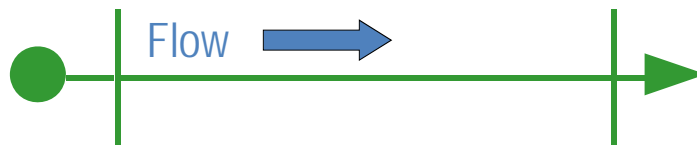
Reliability

Maintain the **adequacy** and **security** of the transmission system under normal and adverse conditions.

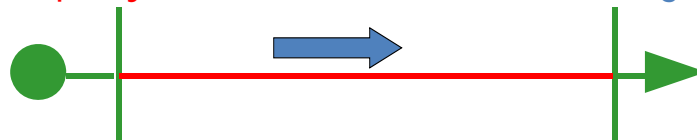
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Normal Operation

N-0 = all transmission elements in service



Adequacy issues when too much flowing



6

Security of the Transmission System

N-1 = one transmission element out of service

An element outage



Can cause

Overload or Voltage issues



7

The Art

- What is future?
 - » Load growth
 - » Existing and new generation
 - » Import and export
 - » Transmission system topology changes
- What is the solution?
 - » Robust
 - » Economic
 - » Acceptable to regulatory/political bodies
 - » Acceptable to the public

8

Change over Time

Some Drivers ...

- **Power Outages**
- **Shift in Attitude (what you think of things)**
- **Shift in Perception (how you view)**
- **Public Policy**
- **Technology**



Some Results ...

- **More Regulation**
- **Open Competition**
- **Expanded Planning**
- **Revised Operation**

9

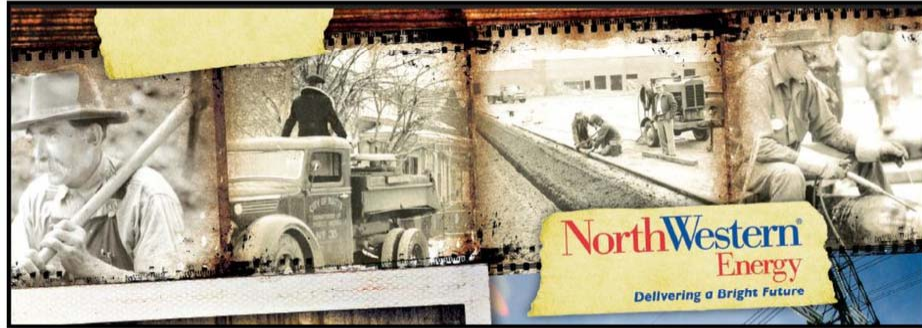
Major FERC Orders Driving Change

- **1978 – Federal Law – PURPA**
Renewable non utility generation
- **1992 – Federal Energy Policy Act**
Amended laws to increase clean energy use and improve overall energy efficiency in the United States
- **1997 - FERC Order 888**
Mandated transmission “open access”
- **2004 – FERC Order 2003**
Non utility generation Interconnection
- **2007 – FERC Order 890**
Preventing undue discrimination changes to local & regional planning
- **2011 – FERC Order 1000**
Expanded Regional & Interregional planning and cost allocation

10

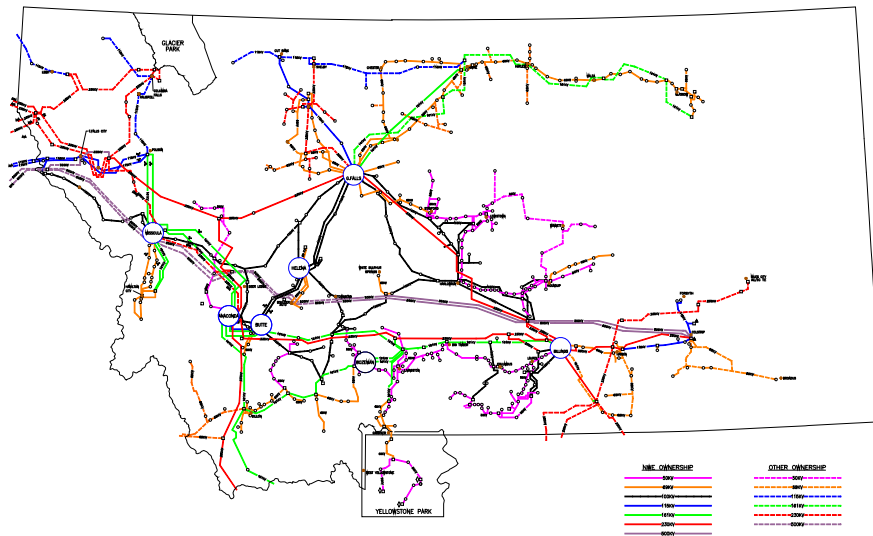
FERC Order 890

Local Planning at NorthWestern Energy



11

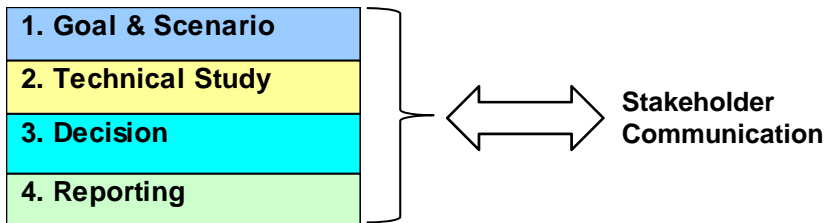
Montana Transmission



12

NWE's 890 Local Planning Process

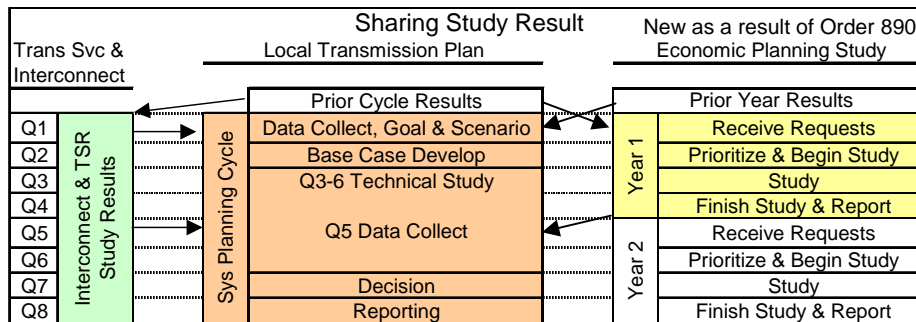
Biennial Planning Cycle



13

Biennial Study

Order 890 formalized the methods and study process



14



Regional Planning – FERC Order 890

15

Regional Planning Order 890

- To address undue discrimination
- Eight planning principles required
 1. Coordination
 2. Openness
 3. Transparency
 4. Information exchange
 5. Comparability
 6. Dispute resolution
 7. Regional participation
 8. Congestion studies
- Applies to local and regional planning process

16

Regional Planning Order 890

- Regional Planning Groups
 - Columbia Grid
 - Northern Tier Transmission Group (NTTG)
 - WestConnect
- NorthWestern is a member of NTTG
 - Member Utilities
 - Deseret Power Electric Cooperative
 - Idaho Power
 - NorthWestern Energy
 - PacifiCorp
 - Portland General Electric
 - Utah Associated Municipal Power Systems



NTTG 890 Regional Planning

Local Plan



Regional Plan



Bottom Up Approach

- Are better regional projects to meet the needs?
- Regional plans are not construction plans.

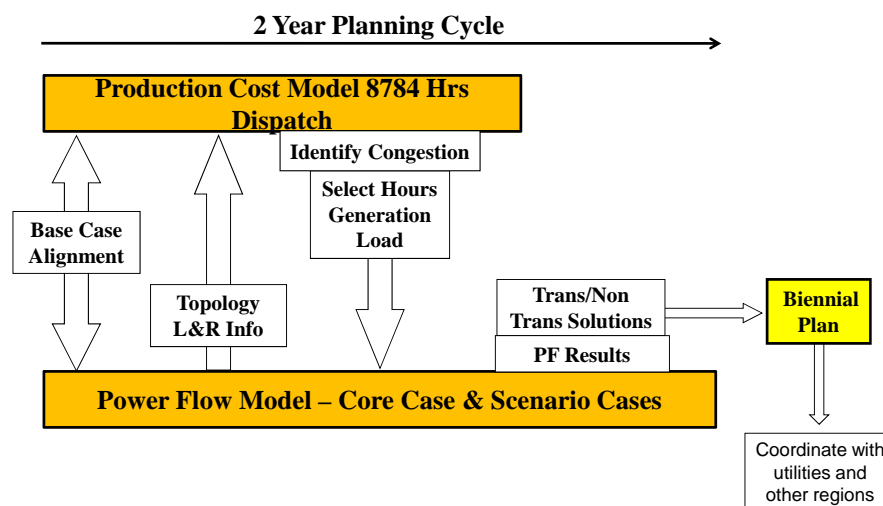
NTTG Biennial Planning Cycle

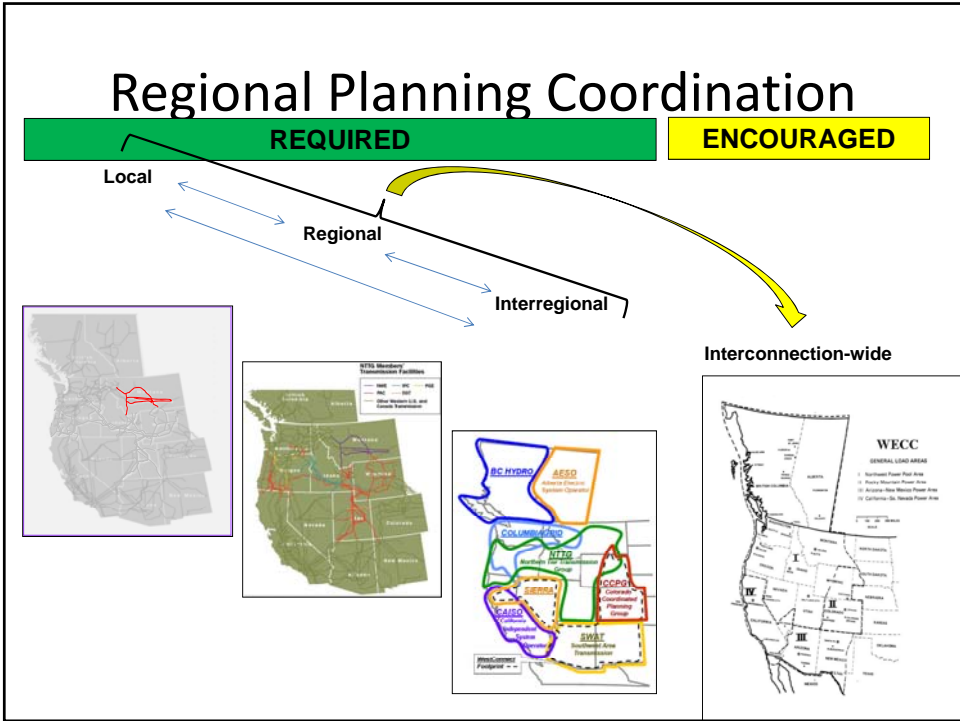
NTTG EIGHT-QUARTER BIENNIAL PLANNING PROCESS

Biennial Planning Cycle			Economic Study Request Cycle		
Gather Information	* 01	Year One	Receive Requests	* 01	Year Two
Develop Study Plan, Assumptions	* 02		Develop Study Plan	* 02	
Perform Draft Plan Analysis	* 03		Perform Studies	* 03	
Perform Draft Plan Analysis	* 04		Report and Review	* 04	
Draft and Review Report and Gather Info	* 05		Receive Requests	* 5	
Final Plan Analysis and Cost Allocation	* 06		Develop Study Plan	* 6	
Prepare and Review Final Report	* 07		Perform Studies, Prepare and Review Final Report	* 7	
Obtain Final Plan Approval	* 08				

* Stakeholder Input

NTTG Planning Study Methodology





2012 NTTG Economic Study

- Great Falls to Malin using NTTG member transmission
- Determine any transmission additions needed through power flow analysis

Assume 500 kV Line
GF - Townsend

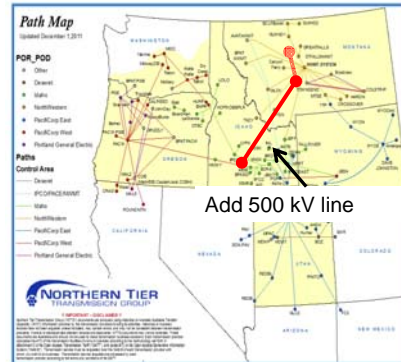
Assume 1500 MW
wind in this area

Assume 1500 MW
Load

22

Economic Study Conclusion

- Need :
 - Extend 500 kV line from Great Falls, MT, to Midpoint, ID
 - Upgrades to Midpoint and Burns series capacitors
 - To increase path rating on several other paths
- Can transfer 400 MW from Great Falls to Malin with a single 500 kV line to Midpoint and no other upgrades



23



FERC Order 1000 Regional Planning & Cost Allocation

24

FERC Order 1000 Regional Planning

- Requirements apply to new transmission facilities
- TP must participate in regional planning process
- Stakeholder participation
- Region must develop a regional transmission plan
 - Consider transmission needs for public policy
 - Be more efficient or cost effective than local plans
 - Is not a construction plan
- Interregional coordination

Compliance filing Oct 10, 2012

FERC Order May 17, 2013

25

Interregional Planning Order 1000

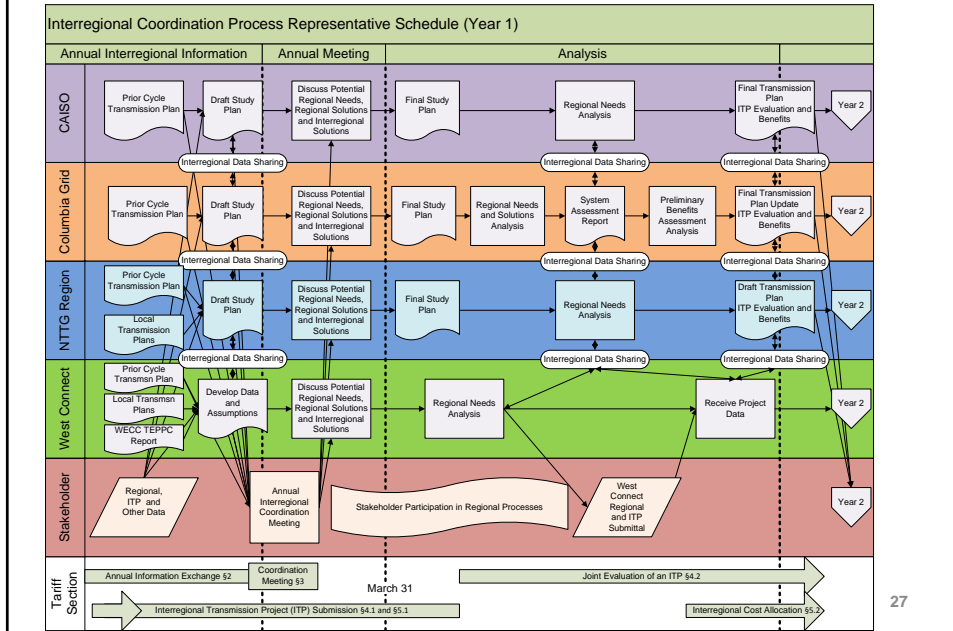
- Each pair of neighboring regions must:
 - Share planning information
 - Identify and jointly evaluate interregional facilities
 - More efficient or cost-effective
- Interregional project starts in one region and ends in another region
- Interregional coordination of planning data and assumptions

Able to developed common tariff language

NTTG Compliance filing May 10, 2013

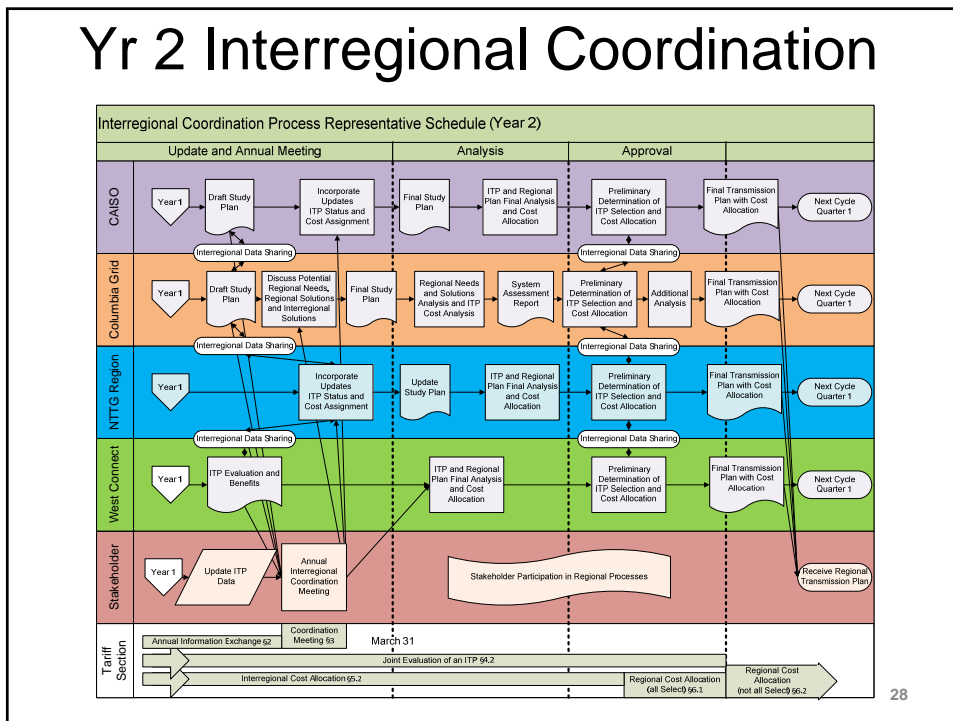
26

Yr 1 Interregional Coordination



27

Yr 2 Interregional Coordination



28

Questions?

“The significant problems we face cannot be solved at the same level of thinking we were at when we created them.”

Albert Einstein

