TAC PRESENTATION

New Resource Integration – Transmission

SYSTEM PLANNING
Prepared by Richard Maguire and the Avista System Planning Group

February 6, 2013

Federal Standards of Conduct

1. No non-public transmission information can be shared with the Avista Merchant Function
2. There are Avista Merchant Function personnel in attendance
3. We can’t share non-public transmission information today

Agenda

- Introduction to Avista System Planning
- Engineering of Local Generation Requests
- Recent Avista Projects
- Large Generation Interconnection Agreement (LGIA) Queue
- Integrated Resource Plan (IRP) Generation Requests
- Future Transmission Planning Initiatives

Introduction to Avista System Planning

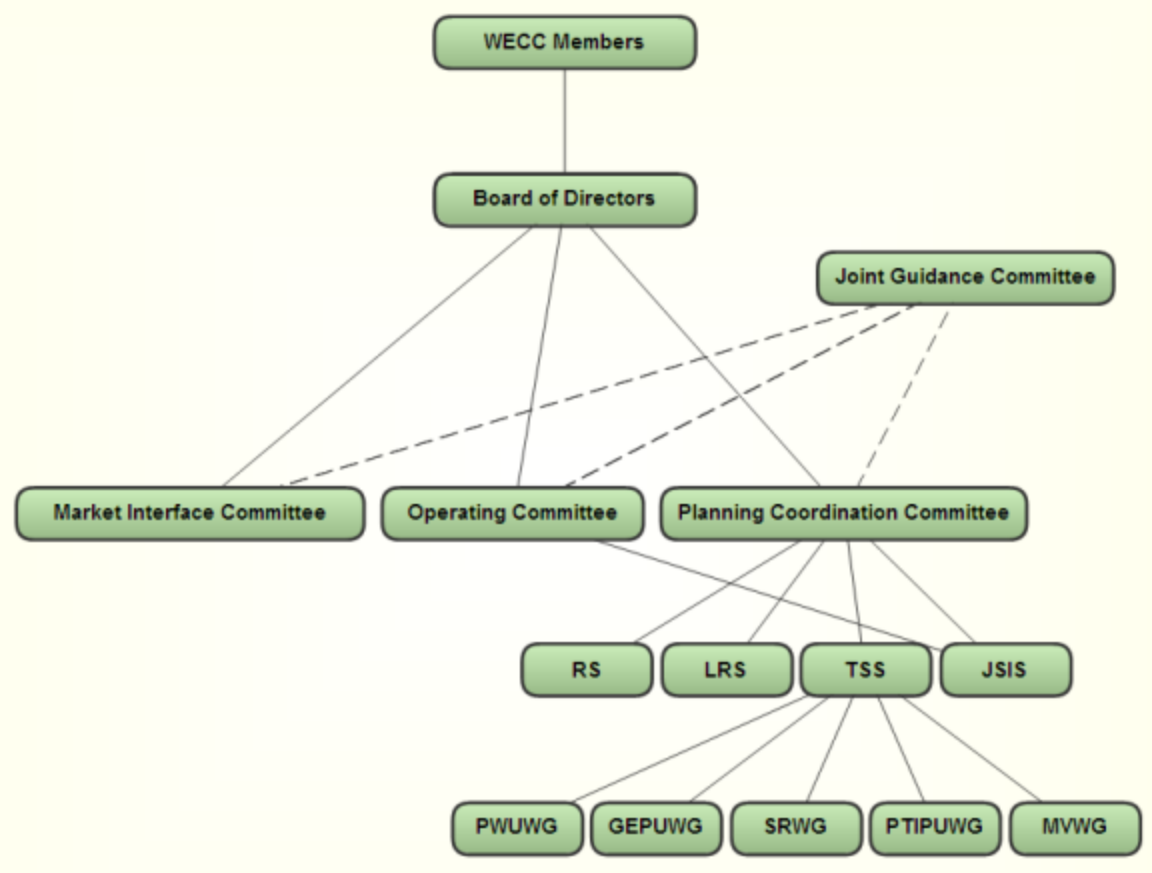
Broad Scope of What We Care About:

- Avista System Performance
- Federal, Regional, and State Compliance
- Regional Transmission System Coordination

Introduction to Avista System Planning

Regional Coordination

- WECC
- NWPP
- CG
- NTTG
- etc.



Introduction to Avista System Planning

We also spend our time:

- Developing internal standards and processes
- Engineering the transmission system
- Engineering the distribution system
- Managing Avista assets
- Projecting future loads and resources
- Engineering local generation requests

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Engineering of Local Generation Requests

Typical Process for Generation Requests

- We generally get requests via two sources:
  - Internal via the IRP requests
  - External *and Internal* via LGIA requests
- We hold a scoping meeting to discuss particulars
- We outline a study plan
- We augment WECC approved cases for our studies
- We analyze the system against the standards
- We publish our findings and recommendations

Engineering of Local Generation Requests

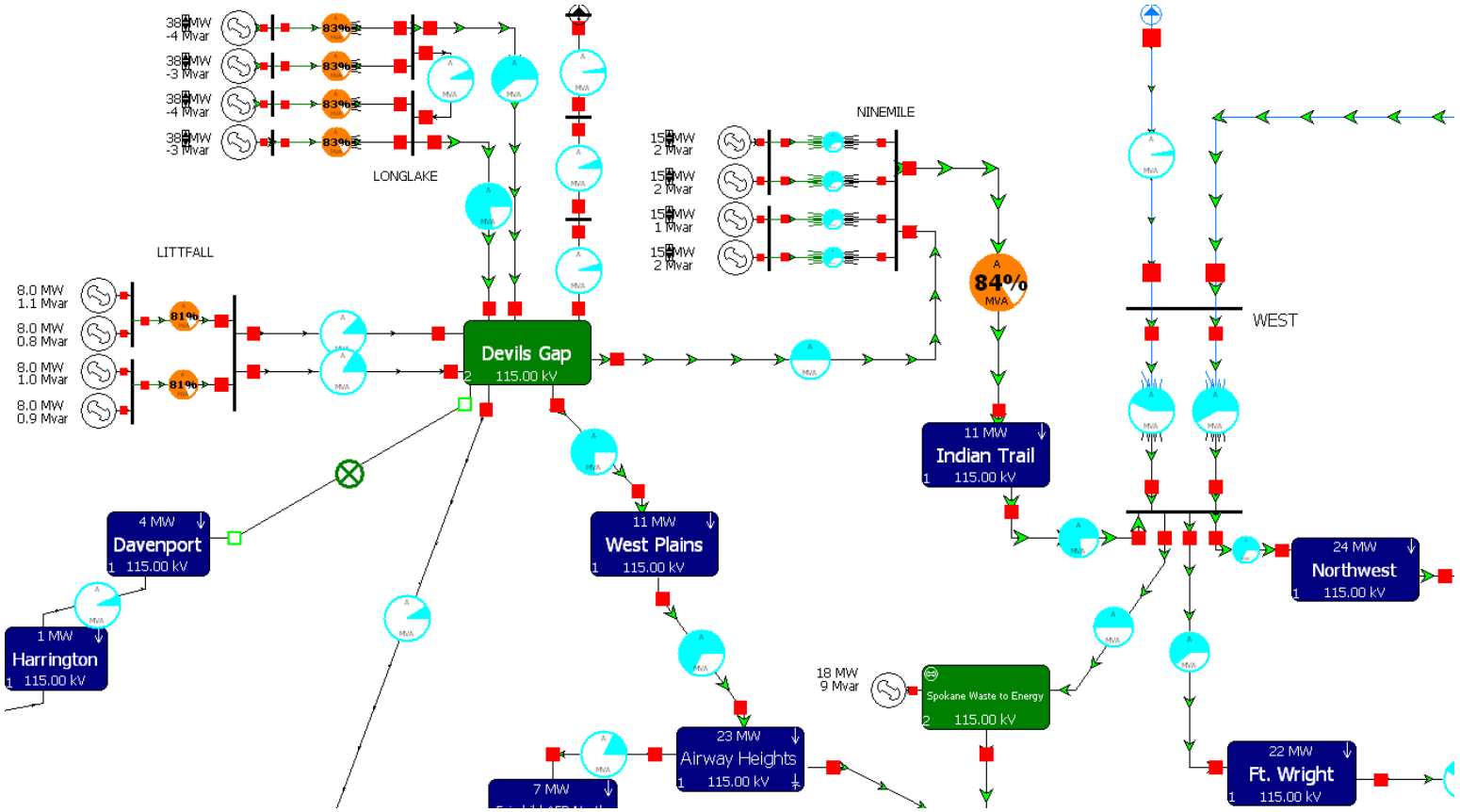
Case Development

	From Number	From Name	To Nur	To Name	Circu	Status	Xfrmr	R	X	B	Lim A MVA
1	40017	ADDY	48007	ADDY AVA	1	Closed	YES	0.03883	0.70558	0.00000	20.0
2	40017	ADDY	48071	CHEWELAH	1	Closed	NO	0.01395	0.05425	0.00778	111.0
3	40017	ADDY	48135	GIFFORD	1	Closed	NO	0.14267	0.13096	0.01488	29.5
4	40017	ADDY	48223	METCHIP	1	Closed	NO	0.00606	0.02316	0.00345	111.0
5	40023	AHSAHKA	48303	OROFINO	1	Closed	NO	0.00500	0.02072	0.00268	111.0
6	40087	BELL BPA	48033	BELL TAP	1	Open	NO	0.00118	0.00369	0.00043	85.9
7	40087	BELL BPA	48449	WAIKIKIT	1	Closed	NO	0.00093	0.00373	0.00051	111.0
8	40149	BR									
9	40149	BR									

Western Montana Hydro	625.6 MW	West of Hatwai (Path 6)	117.4 MW
Noxon Rapids (562MW)	137.9 MW	Lolo-Oxbow 230kV	276.8 MW
Cabinet Gorge (265MW)	81.7 MW	Dry Creek-Walla Walla 230kV	159.6 MW
Libby (605MW)	216.0 MW		
Hungry Horse (430MW)	190.0 MW	West of Cabinet	1109.1 MW
		Montana-Northwest (Path 8)	970.0 MW
Colstrip Total			
Colstrip 1 (330MW)	330.0 MW	Idaho-Northwest (Path 14)	-584.6 MW
Colstrip 2 (330MW)	330.0 MW	Midpoint-Summer Lake (Path 75)	-75.2 MW
Colstrip 3 (823MW)	763.8 MW	Idaho-Montana (Path 18)	-274.5 MW
Colstrip 4 (823MW)	775.5 MW		

Engineering of Local Generation Requests

Case Analysis

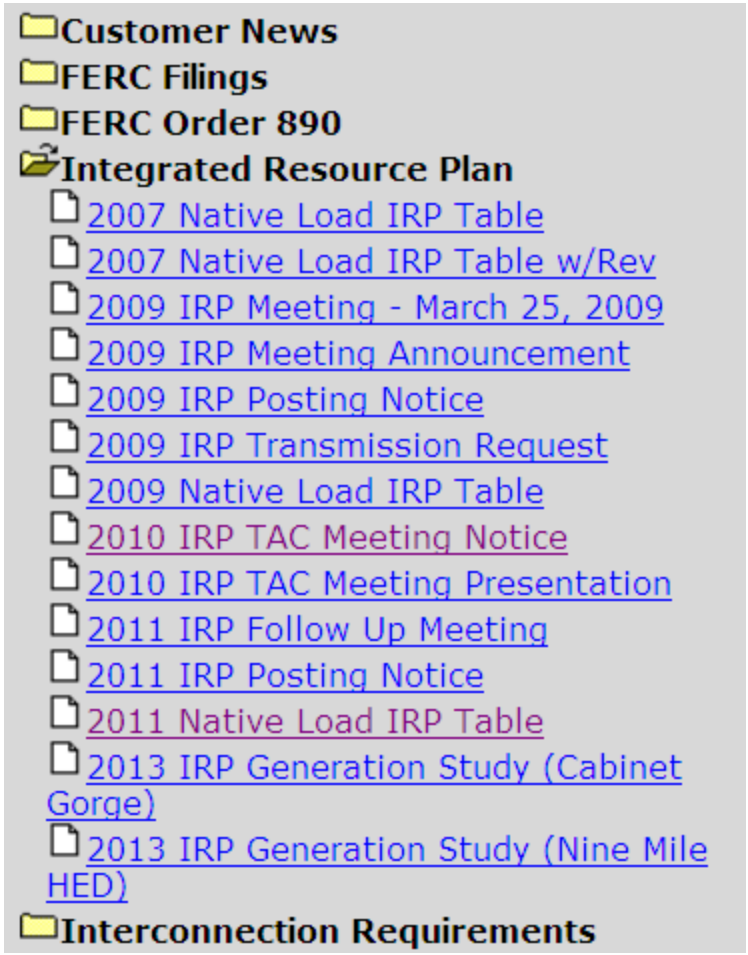


Engineering of Local Generation Requests

- Mandatory Federal Standards Include:
  - No overloads all lines and equipment in service (N-0)
  - No overloads or loss of load for one element out of service (N-1)
  - Some relaxation of the above for two elements out (N-2)
  - Standards are “Request Agnostic”
- Potential Sanctions:
  - Up to $1M Per Day Per Occurrence
  - Mitigation Plan must be provided and progress demonstrated

Engineering of Local Generation Requests

Publish Results



www.oasis.oati.com/avat/index.html

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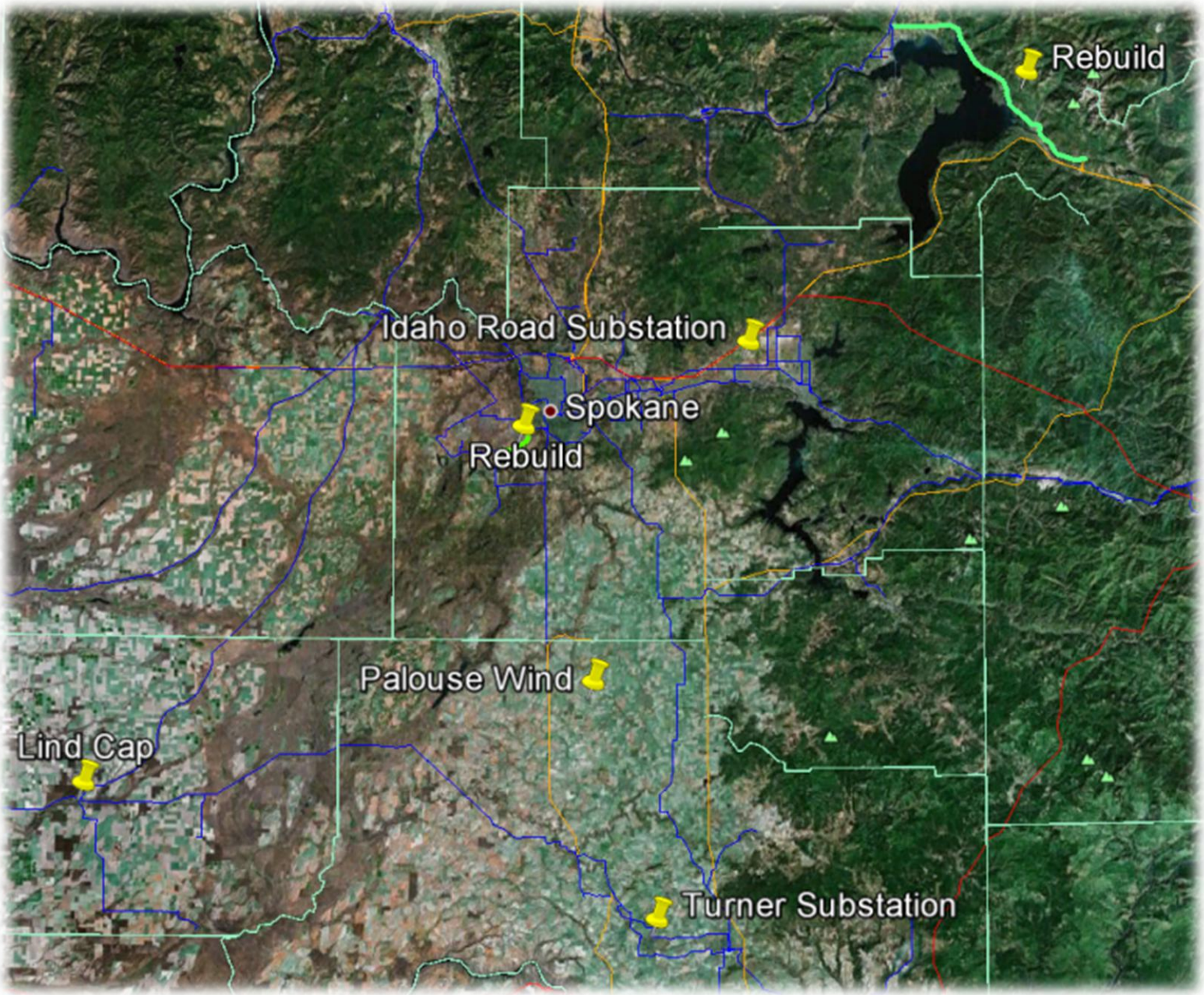

Rebuild
Idaho Road Substation
Spokane
Rebuild
Palouse Wind
Lind Cap
Turner Substation

Recent Avista Projects

- Palouse Wind:
  - 58 turbines
  - 105 MW
  - Thornton 230 kV Substation
    - $4.35M
  - Benewah – Shawnee 230 kV Transmission Line

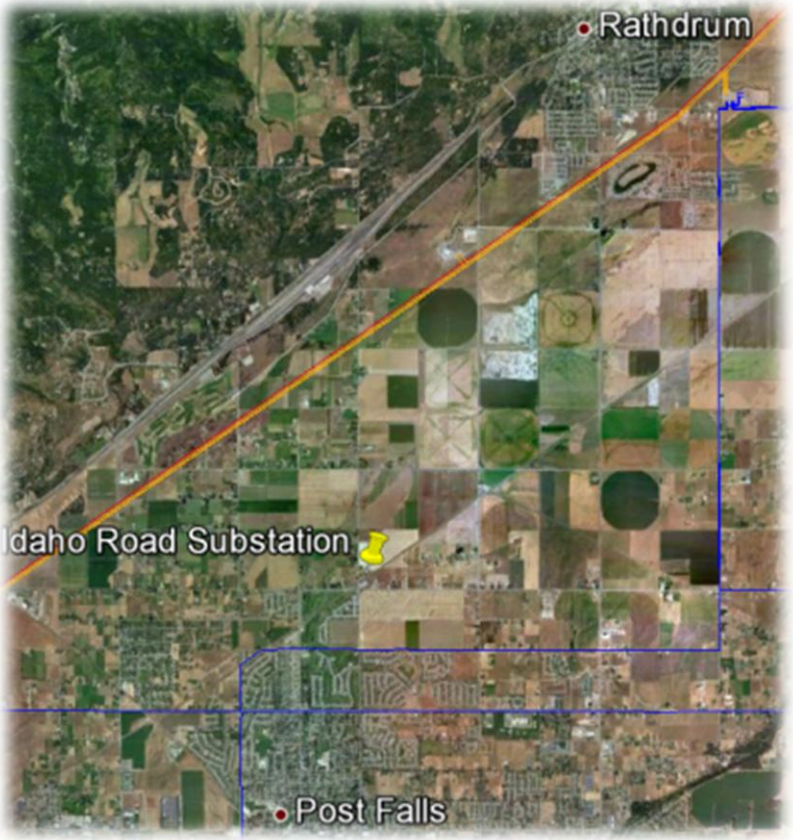
Recent Avista Projects

Lind Capacitor Bank

- ~$750K

Recent Avista Projects

Idaho Road 115 kV Substation



Recent Avista Projects

Turner 115 kV Substation

Recent Avista Projects

115 kV Transmission Lines

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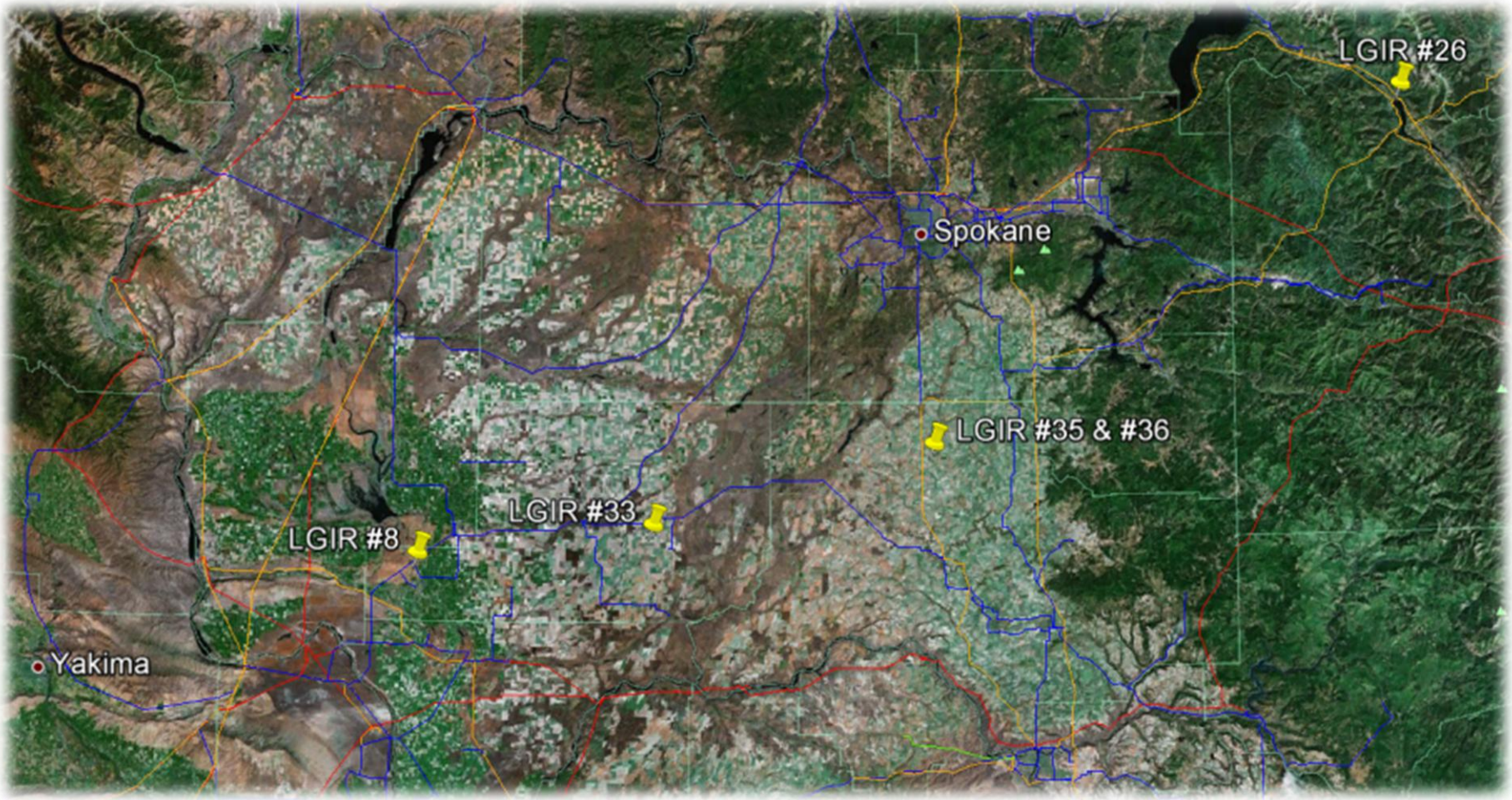
LGIR #26
Spokane
LGIR #35 & #36
LGIR #33
LGIR #8
Yakima

Avista Non-IRP Generation Queue

- **Project # 08**: 75 MW with Facility Study completed
  - $6.6M 230 kV switching station and tap
  - $5.6M 115 kV breaker position and reconductor
- **Project # 26**: 42MW with System Impact Study completed
- **Project # 33**: 400 MW in Feasibility Study stage
- **Project # 35**: 200 MW in System Impact Study stage
- **Project # 36**: 105 MW in Feasibility Study stage

http://www.oasis.oati.com/AVAT

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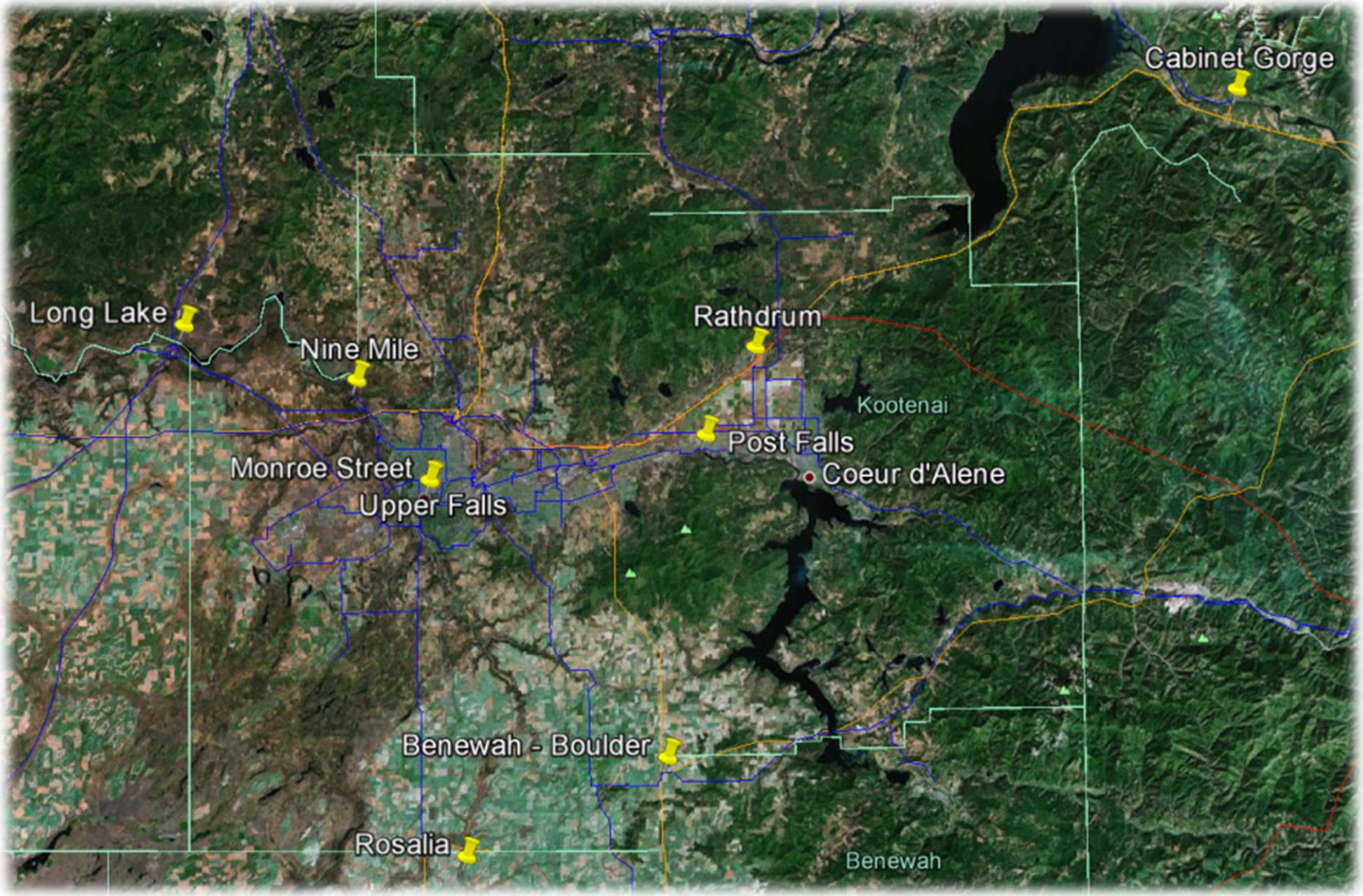
Cabinet Gorge
Long Lake
Nine Mile
Rathdrum
Kootenai
Post Falls
Coeur d'Alene
Monroe Street
Upper Falls
Benewah - Boulder
Rosalia
Benewah

Avista Non-IRP Generation Queue

- **Nine Mile HED**: 60 MW total
- **Long Lake HED**: 68 MW additional (156 MW total)
  - Studied coincident with Nine Mile IRP request
  - $9.9M for 115 kV Transmission Line reconductoring
- **Monroe Street HED**: 80 MW additional (95 MW total)
- **Upper Falls HED**: 40 MW additional (50.26 MW total)
- **Post Falls HED**: 33.5 MW total

Avista Non-IRP Generation Queue

- **Cabinet Gorge HED:** 60 MW additional (330.5 MW total)
  - No capacity available today during Heavy Summer loading
  - Considering RAS or potential Transmission System upgrades
- **Benewah – Boulder**: 300 MW project currently under study
- **Rathdrum:** 300 MW
  - $7M for new breaker position at Rathdrum 230 kV Substation
- **Rosalia:** 200 MW
  - $4M for new breaker position at Thornton 230 kV Substation

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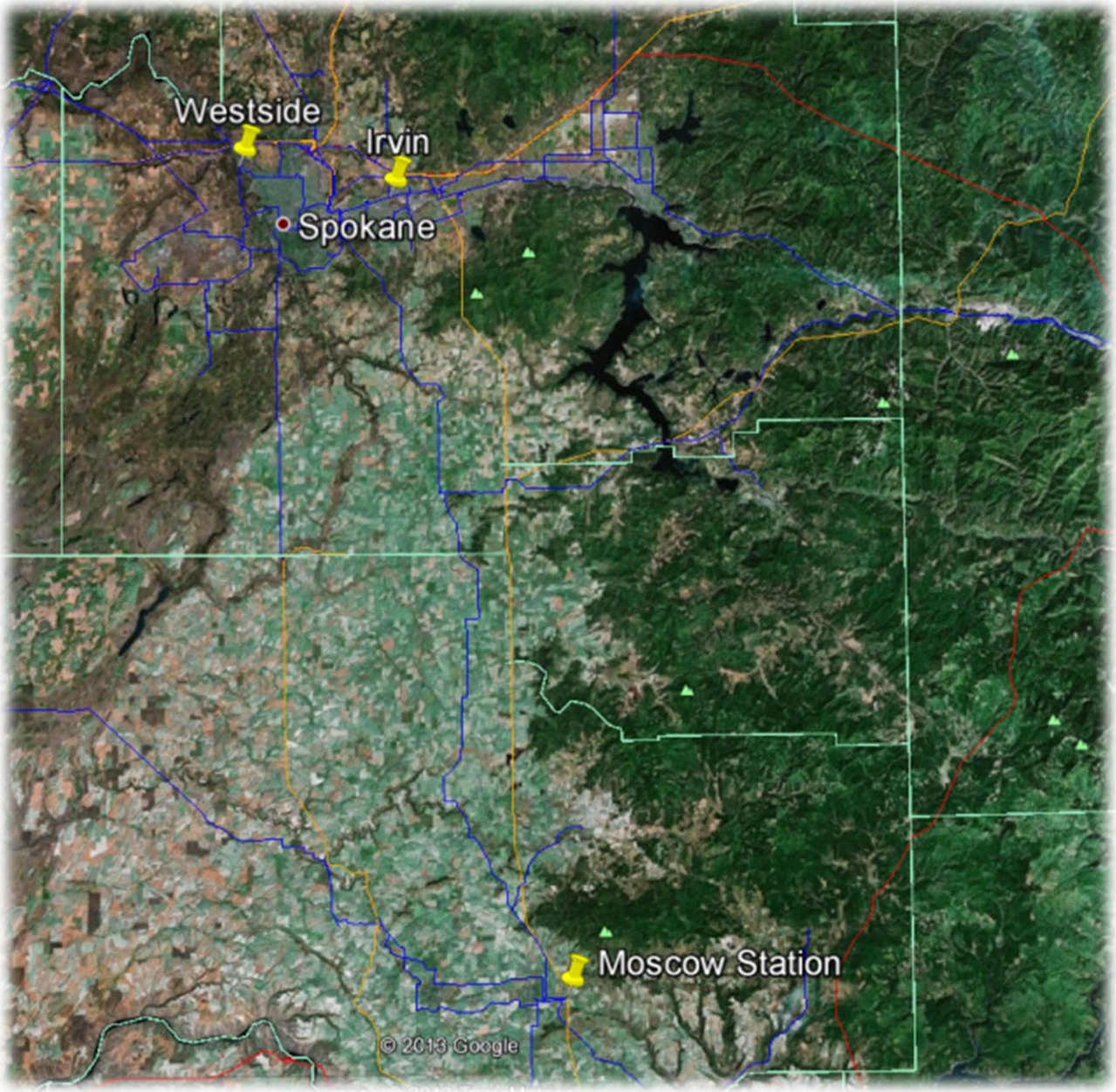
Westside
Irvin
Spokane
Moscow Station
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Examples of Future Construction Required to Meet NERC / WECC Reliability Standards

- Moscow Station:
  - 250 MVA transformer
  - Increases capacity to the Moscow / Pullman area and relieves loading on the Shawnee transformer
- Westside Station:
  - Two 250 MVA transformers
  - Increases capacity and security to the West Plains area of Spokane County, and relieves heavy loading on large transformers in the central Spokane area
- Irvin 115 kV and Associated 115 kV Reconductoring:
  - 115 kV Switching Station and other upgrades to meet additional load growth in the Spokane Valley

Recent Avista Projects

Moscow Station Construction

Future Work?

- **Generic Break Point Studies for IRP / 3rd Party Developers:**
  - "How many MW can we integrate where for about what $$?"
    - Main Grid 230 kV Stations.
    - Select 115 kV Stations.
- **Potential Open Seasons:**
  - "Does anyone want to get to the Mid Columbia?"
  - "Does anyone want to get out of Montana?"
  - "Does anyone want to get to PAC or IPC?"

Questions?