MEMORANDUM

TO: Power Committee

FROM: Gillian Charles

SUBJECT: Update on Existing System, Coal Retirements, and Policies

BACKGROUND:

Presenter: Gillian Charles

Summary: Staff will be presenting an update to the existing system resources and existing renewable and clean policies for the draft 2021 Power Plan. As you will recall, staff presented on both topics at Power Committee meetings in September and October of 2019. This presentation will focus on updates since then and describe how the data is interpreted and translated into data inputs for power plan development.

Between packet day and the Power Committee meeting, there is an advisory committee meeting on these same topics. Following the advisory committee meeting, this presentation may be updated with additional material or feedback from stakeholders. In this case, staff will send a follow-up email with an updated presentation.

Workplan: A.4.2 Develop environmental methodology, existing system, transmission availability, renewable portfolio standards, emissions and other datasets for the 2021 Plan
Update on Existing System, Coal Retirements, and Policies

Gillian Charles
Power Committee - May 12, 2020
Power Committee Meetings: Existing System and Policies

July 2019  
Process Review: Existing System and State Policies

September 2019  
Review: Current status of existing system and WECC-wide coal retirements

October 2019  
Review: Current status of clean policies - region and WECC-wide

Note: The work products that staff presents to the Power Committee have all been vetted with the Generating Resources Advisory Committee (GRAC) and when applicable the System Analysis Advisory Committee (SAAC).
Starting at the beginning...

The existing power system resources, including known future retirements, and the state policies that govern current resource operation and future resource development serve as the foundation and guideposts when determining the power plan’s future resource strategy.
Existing System
Determining what constitutes the “Existing System”

A lot like a decision flow chart, with key questions that narrow and fine tune the answer...

Start with Council’s project database and narrow the field based on location, project status, ownership, load, etc.
Existing system = Resources physically located in region and out of region serving regional load

Power Plan is a plan for the region...

...however the Northwest is obviously directly affected by the resources and policies that exist in the surrounding states and markets

It is our intent to capture both - to the extent possible
What projects and resources qualify as the “Existing System”? 

Resources that are operating or under construction at the beginning of the power planning period (Q4 2021) - however we need to “freeze” the dataset for the draft, so this is more akin to a project’s status as of March 2020.
PNW Project Pipeline: Under Construction and Proposed*

* Not exhaustive; there are likely many QF projects not included until more solid evidence of development

- Some projects in the pipeline are further along in the planning process - for example, a project may have a power purchase agreement or completed the siting and licensing process
- Propose to describe these projects qualitatively in the narrative; if the model options renewables early, it serves as a reality check to the actual projects in the queue

Caveat: Between draft and final, existing system data can be updated to reflect interim project development

Data source: Council’s project database
Existing System Retirements

Resources that have a confirmed retirement date during the **power planning period** (2021 Q4 - 2041 Q3) are retired from the existing system base. Proposed retirements are not included in the base, however scenarios may be representative of additional retirements (e.g. early coal retirement scenario).
Planned retirements based on agreements, announcements, IRPs; subject to change
Idaho Power intends to end its participation in North Valmy 1 in 2019
Uncertainty remains over timing of Jim Bridger 1,2 potential accelerated retirements
Hardin Generating Station was sold to an out-of-region cryptocurrency company; therefore no longer “counts” towards the region
Colstrip 3,4 should be considered very tentative

Data source: Council’s project database

Updated Mar 2020
WECC coal units in operation, decreasing over time

Overall, coal operating in the WECC falls from about ~34GW in 2019, to ~15GW in 2030 and ~13GW in 2032 (and thereafter)

Data source: Council’s project database and coal unit retirements database/map
Project Database & Components

Project/Unit-level data
- Resource fuel
- Technology type
- Nameplate capacity
- Operating status
- Location
- Ownership/electrical load
- Historical energy
- ... and many more!

Assumptions
- Heat rate
- Seasonal outages
- ... and many more!
Existing System – Starting Point

Aggregate unit-level data and sort into resource blocks

- Some resources have multiple blocks
- Some resources are aggregated into one block

Example: natural gas

<table>
<thead>
<tr>
<th>Gas West 1</th>
<th>Gas East 1</th>
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<tbody>
<tr>
<td>Gas West 2</td>
<td>Gas East 2</td>
</tr>
<tr>
<td>Gas West 3</td>
<td>Gas East 3</td>
</tr>
</tbody>
</table>
Existing System – Resource Blocks

- Each resource block has attributes that have been aggregated from unit-level data:
  - Nameplate capacity (MW), average heat rate, average fixed O&M, average variable O&M, average forced outage rate, etc.

- The model dispatches resources by block to meet load; dispatch considers the heat rate and VOM, along with fuel and electricity prices.
Policies
Policies (or goals) that have been adopted by the beginning of the power planning period (Q4 2021) - however we need to “freeze” the dataset for the draft, so this is more akin to the status as of March 2020. Policies that have been adopted, but still must undergo rulemakings, are included and reflected to the best of our ability (and with advisory committee input)
Aggregating Clean Policies

• Multi-layered approach
  • Track policies at the state level (RPS, WA CETA), city/county goals*, and utility goals (PGE, IPC, Avista, etc.)

• Aggregate % of load within the region that is obligated to meet clean and renewable targets throughout the planning period

* To the extent possible!
Washington: ex. of state-wide policy “absorbing” other policies (for modeling purposes)

<table>
<thead>
<tr>
<th>City/County</th>
<th>Avista</th>
<th>Puget Sound Energy</th>
<th>RPS</th>
<th>CETA</th>
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</thead>
<tbody>
<tr>
<td>Spokane</td>
<td>100% carbon neutral by 2027; 100% carbon-free by 2045</td>
<td>100% carbon neutral by 2030; 50% reduction in carbon footprint by 2040</td>
<td>15% RPS by 2020</td>
<td>100% carbon neutral by 2030 (80%/20%); 100% clean by 2045</td>
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<tr>
<td>Seattle</td>
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<tr>
<td>Whatcom County</td>
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Idaho: ex. of utility goals creating a “pseudo” state policy

<table>
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<tr>
<th>City/County</th>
<th>Avista</th>
<th>Idaho Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boise Pocatello</td>
<td>100% carbon neutral by 2027; 100% carbon-free by 2045</td>
<td>100% clean by 2045</td>
</tr>
</tbody>
</table>
Model inputs: State, utility, and city policies aggregated to the region

Regional % load obligated to meet RPS; regional % load obligated to meet clean policy

Regional RPS obligation per year; regional clean energy per year

For illustrative purposes only
Coming up next...

• GRAC - May 21
  • Proxy emerging tech reference plant

• SAAC – June 2
  • Translating reference plants into models

• June Power Committee
  • Review generating resource reference plants and proxy emerging tech reference plant