Data Center Energy & Resource Impacts Subgroup
Draft and tentative findings

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Questions: kate.brouns@gov.wa.gov and glenn.blackmon@commerce.wa.gov

General Power Sector

1. **Overall economywide demand in Washington for new, clean electricity sources is expected to increase for multiple reasons, including replacement of retiring fossil-fired plants and electrification of existing transportation, building, and industrial uses.**

2. **Multiple factors could constrain the ability of the power system to increase capacity on pace with demand growth; these factors include permitting and land acquisition, new transmission and new generation siting timelines, long lead times on critical materials and equipment, extended delays in processing interconnection requests, existing transmission constraints, and impacts of state and federal policies.**
    - Early engagement with agencies, Tribes, and communities on issues related to siting and permitting can reduce the overall timeline and avoid or minimize the impacts of a project.
    - Coordinated planning at the regional, state, and local level can identify opportunities and risks which can help in site selection and permitting of projects.

3. **Limitations of the Pacific Northwest transmission system are a significant constraint in accessing additional sources of clean electricity.**
    - These limitations exist at multiple points in the grid, from long-haul capacity to reach resources across the West to local capacity to interconnect large new loads.
    - Reconductoring and Grid enhancing technologies (GETS) represent a short-term solution to adding capacity on the transmission system, but they will not be able to replace additional transmission infrastructure investment in the long term.

Data Center-Specific

4. **The addition of large data center loads to the operations of retail utilities presents risks for other retail customers.**
    - Potential impacts to other customers arise as new investments and operating costs are included in rates. Data center electric consumption may adversely affect costs incurred for wholesale power and reliability; especially during peak

periods. Other costs could result if large customers exit before full recovery of investments made to serve those customers.

- There are existing tools available to regulators and governing boards to manage potential impacts, but it remains unclear whether these are sufficient. Examples include statutes limiting the obligation to serve, separate customer classes, cost of service and rate design, application and service extension charges, contract term requirements, resource planning requirements, and operating standards.
- Other states have made efforts to address this issue and learning from those approaches may be helpful. One of those states is Oregon, which recently passed legislation to ensure data centers pay their fair share of energy costs [see Oregon House Bill HB 3546 (2025)].

5. **Data center development is projected to grow exponentially and requires significant additional resources for the electric power grid, including generating resources, substations, and local and regional transmission capacity.**
   - Regionally, the Northwest Power and Conservation Council has updated its electricity load estimates for data centers and chip fabrication. It shows that if recent trends continue, these projects could increase growth by about 2,200 average megawatts by 2030. They also developed a high growth scenario with loads increasing to about 4,800 average megawatts by 2030 and 6,500 by 2046. For comparison, at the medium estimate, the electricity use would be equivalent to adding the power used by two cities the size of Seattle in the next five years. At the high end, the electricity use by 2030 would be similar to adding about five cities the size of Seattle.
   - In Washington, some public utility districts are seeing data center requests that would require energy demand double-to-triple the size of the PUD's current retail load.
   - To meet demand, utilities may need to rely more on energy market power purchases until additional resources can be built to serve the data center load.
   - Load growth requests are outpacing planning processes and capturing new developments quickly and accurately is important.
   - There is significant uncertainty about the size of the data center energy demands. The Data Center Coalition has proposed a verification system that would help address this problem.
   - Accurate forecasting of new demands, particularly for large users like data centers, has never been more critical. Current forecasts have the potential to "double count" growth that can lead to overbuilding infrastructure, imposing unnecessary costs on customers.
   - Data centers can also add significantly to peak loads. A recent study found that the loads for evaporative cooling were relatively constant and added about 10 to 20 percent to the server processing load. For the best-available air-cooling

systems, as the day heats up, the cooling load adds about 55 percent to the computing loads.
- New data centers are requiring more and more energy for more complicated data processing (e.g., hyperscale data centers), which will likely add to future energy demand needs.

6. **Opportunities exist to manage and limit the resource requirements resulting from the development of data centers. Further work is needed to assess the potential of these opportunities and how best to ensure implementation.**
    - Some of these opportunities include energy efficient designs, advanced power management practices, economic dispatch of computing loads, planned use of backup generators during power system peaks, use of battery storage and clean energy, and the use of standalone (microgrid) generating and storage resources. For instance, some jurisdictions has set standards for power use effectiveness (PUE) of data centers.
    - In some cases, split incentives exist between data center owners (i.e., "landlords") and tenants that limit financial motivation to choose the most cost-effective approaches.

7. **Data center operators and renewable energy project developers have collectively procured and constructed many times more clean energy resources than the state's utilities. Much of this has been driven by voluntary company climate and clean energy goals.**
    - The experience and expertise of these entities represent a potential resource for the state's utilities as they expand and decarbonize the grid. Data centers may also have additional capital to invest in improving the grid (e.g., investing in grid-enhancing technologies).
    - Because of their broader resource portfolios, tech companies may have more capacity to invest in emerging clean energy technologies than do regulated or consumer-owned utilities.
    - The state law that provides tax incentives for data centers requires that they meet certain green building standards. These standards do not address the efficiency measures to cool the processors.

8. **Generation and storage behind the meter, such as solar + storage and enhanced geothermal, could support data center energy demands that cannot be readily met with existing transmission capacity. Gas-fired power generation is also a potential interim source.**
    - While not prohibited within the limits of CETA, any use of gas-fired generation must consider issues such as local pollution impacts, regulatory limits on power plant greenhouse gas emissions, long-term rate impacts to customers if

expected data center loads fail to materialize, and the availability of pipeline capacity during winter peaks.

- Greenhouse gas emissions from any increased use of methane gas-fired generation would be covered under the Climate Commitment Act. This coverage limits any potential impact on the state's overall GHG emissions but may affect the availability and price of allowances for other covered entities whose activities result in GHG pollution.

9. **Data centers may have potential direct, indirect, and cumulative impacts to the natural and built environment. Developers can avoid and minimize impacts when choosing sites and designing a project and through planning and early coordination.**
    - When multiple data centers are developed in the same general area, there can be cumulative impacts to resources such as air, water, transportation, and cultural resources.
    - Data centers are typically large-scale operations that can consume considerable amounts of land. The siting of these centers may exacerbate local land use constraints and displace low-income communities.
    - Coordinated planning and early engagement with agencies, Tribes, and communities can identify issues, data needs, and concerns to reduce overall environmental impacts and project timelines.

10. **General permits and general orders can reduce project timelines and ensure state regulatory requirements are met. These allow a proposed project to use pre-evaluated conditions and criteria and take less time than an individual permit.**
    - Ecology has existing general permits for water discharges and is developing a general order for data center emergency engine operations.

11. **The use of cooling systems and fossil fuels for power or back-up power of data centers affects air resources. Combustion generators release particulate matter pollutants, and greenhouse gases. Cooling systems can release hydrofluorocarbons and other fluorinated gases. Water cooling systems can have other air emissions, such as anti-microbial.**
    - Air permits would be required to ensure emissions from data centers meet air quality standards.
    - Impacts can be avoided or minimized by choosing clean energy sources of power and using natural refrigerant systems that have fewer or no greenhouse gas emissions.

12. **Data centers may consume large amounts of water, depending on the size and cooling system used. This can affect water resources, such as water availability, and water quality through discharges of pollutants and effects on water temperatures. There could be potential impacts to public infrastructure, such as**

municipal water facilities, habitats, species, critical areas, and to Tribal rights, interests, and resources.

- Impacts can be avoided or minimized by choosing sites with available water, implementing efficiencies or closed loop systems to reduce water use and discharges, and other water reuse options.
- Data centers that discharge water with pollutants or that include operations involving changes or discharges that affect waters can have potential impacts to waterbodies, habitats, and species and would require water quality discharge permits. Discharges to the Columbia River would have restrictions on temperature to ensure protection of salmon and habitat.

13. **Water use could be a significant issue.** Data centers could cause serious impacts in areas with low water supplies or salmon and steelhead listed under the Endangered Species Act. Data center operations may require the use of already over-allocated water resources to maintain cool operating temperatures within the center. It will be important to ensure that water resources will not be allocated to data centers, unless it can be demonstrated that such use would have no impact on watershed conditions, including stream flows for anadromous species, temperature, and pollution.

    The CRITFC study analyzed the water use of data centers. Evaporative cooling systems use more water than air-cooled systems. The total projected use of evaporative cooling is a small percentage of total water use; however, the local effects on salmon and steelhead need to be addressed.

14. **[placeholder] Other non-energy resource findings**

15. **Data center energy demands could adversely affect tribal communities and Treaty-Protected resources.**

    Washington's commitment to the environmental justice principles and how energy development impacts overburdened communities including Tribal Communities should be part of all State analysis of data centers and the related energy and transmission needed to serve them.