## REVISED STAFF REPORT

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| **Agenda Item:** | 9 | **Name:** | Jenny Giambattista |
| **Proposed No**.: | 2017-0035 | **Date:** | February 21, 2017 |

***Proposed Ordinance 2017-0035, authorizing the purchase of renewable wind energy from Puget Sound Energy, passed out of committee on February 21, 2017, without recommendation.***

**SUBJECT**

Proposed Ordinance 2017-0035 authorizes the purchase of renewable wind energy from Puget Sound Energy (PSE) starting in 2019 for a 10-year contract term.

**SUMMARY**

Proposed Ordinance 2017-0035 authorizes the Executive to enter into a ten year service agreement with Puget Sound Energy to purchase wind-generated electricity from a soon to be constructed wind facility in Western Washington. This voluntary renewable energy offering is referred to as “Green Direct” energy. The service agreement commits King County to purchase Green Direct energy beginning in 2019 for specific facilities listed in Attachment B to the ordinance. The agreement would result in the purchase of Green Direct power for most of the County’s electricity needs in PSE’s service territory.

The fiscal notes estimate the incremental cost to purchase wind power over standard power to be $305,633 for 2019-2020 and $76,089 in 2021-2022. In out-years the cost of green direct power under this agreement is projected to be less than the projected future cost of standard power and thus there are not expected to be any incremental costs. Under this agreement, annual rate increases are fixed at two percent per year for the electricity. There is no capital cost for entering into this agreement.

This ordinance will contribute to meeting the greenhouse gas emissions (GHG) and renewable energy goals of the Strategic Climate Action Plan. Purchasing renewable electricity through the Green Direct program is projected to reduce direct emissions in King County operations across all sources by ten percent. This ordinance would also contribute to meeting the requirements of Ordinance 17971, for the Wastewater Treatment Division and the Solid Waste Division to achieve carbon neutral operations by 2020.

Executive staff will provide an overview (Attachment 5) of the legislation today.

**BACKGROUND**

King County’s Strategic Climate Action Plan, adopted in 2015 and Ordinance 17971, adopted in 2015 commit King County to greenhouse gas reduction and increased renewable energy targets. The analysis section of the staff report provides more details on King County’s goals for GHG reduction and increased use of renewable energy.

**Puget Sound Energy’s—Green Direct Power Program**

In September 2016 Puget Sound Energy (PSE) received approval from the Washington Utilities and Transportation Commission (WUTC) to offer a voluntary, long term renewable energy option to governments or large commercial customers.[[1]](#footnote-2) The program is referred to by PSE as “Green Direct” power. The WUTC approved a set of rules referred to as Schedule 139 (see Attachment 4) to govern the program. Schedule 139 allows eligible customers to purchase renewable wind power from Puget Sound Energy over a 10, 15, or 20 year contract term. The electrons from the wind power facility are not directly connected to participating wind energy customers, but rather the wind energy is added to the electricity grid and becomes part of PSE’s electricity portfolio. Under the Green Direct Service Agreement, King County will receive equivalent renewable electricity.

The specific wind project will be the Skookumchuck Wind Project to be developed by RES Americas[[2]](#footnote-3) and located in Thurston and Lewis Counties. It will be the largest wind power installation built in Western Washington. According to PSE, the permit process is well underway and the project is on track to deliver electricity beginning in 2019.

Prior to the construction of the project, PSE is seeking commitments from customers in an aggregate amount matching the supply that will be built at Skookumchuck. According to PSE, Mercer Island, Bellevue, Sound Transit, Anacortes, and Western Washington University have committed to purchasing Green Direct power. King County’s proposed commitment represents about one-third of the total energy output for this facility and thus its participation is significant to the project.

According to Executive staff, 37 percent of the County government’s metered electricity is purchased from PSE. Of that amount, 98.3 percent is moving to Green Direct.

*Environmental benefits of Green Direct Program*

The Green Direct program will result in the production of additional renewable energy beyond what is required under Washington’s Energy Independence Act or I-937. This is because the energy produced under Schedule 139 cannot be counted towards the targets of I-937 for 15 percent renewable energy by 2020. PSE estimates the proposed wind facility supplying this program will generate a projected average of 353,028,000 kilowatt hours per year from 52 turbines. This is equivalent to powering approximately 29,400 homes for a year and could create a GHG emissions reduction of approximately 176,500 tons of CO2 when compared to PSE's recent average electricity generation fuel mix portfolio.

*How is the new Green Direct Program different from Green Power Program?*

The primary difference is that the Green Direct Program guarantees development of a new, renewable energy supply while the Green Power Program relies on the purchase of renewable energy credits tied to existing renewable energy generation. **The Green Direct Program** results in the production of new renewable energy generated in Washington State.  Further, investment in Green Direct will stimulate economic development in SW Washington, with construction and maintenance jobs, and increased property taxes at the site.  **The Green Power Program** enables customers to pay a voluntary surcharge on their electricity bill to purchase RECs to offset carbon emissions. Puget Sound Energy sources RECs from existing projects in the Pacific NW, but there is no assurance that the RECs will be produced from in-state facilities. While the purchase of RECs through the Green Power Program supports renewable energy facility owners with another source of revenue, there is no guarantee that this would catalyze development of additional renewable energy.

*More about wind energy*

According to Executive staff, the best practice accounting approaches typically consider wind energy to have no direct GHG emissions. Additionally, when considering “lifecycle” emissions, for example related to wind turbine construction, wind has a very low lifecycle impact. Overall, lifecycle emissions were estimated at about 10 grams of carbon dioxide equivalent per kilowatt[[3]](#footnote-4) hour (kWh) compared to coal that has a lifecycle emissions of about 1,000 grams carbon dioxide equivalent per kWh.

Wind is a mature technology with predictable long term operating costs. The turbines are well built and require minimal maintenance and only periodic replacement of parts. Turbines have a long product life and are frequently decommissioned only so they may be replaced with larger, more powerful turbines. Improved technology and economies of scale have produced very low per kWh prices of wind-generated electricity, which has resulted in high rates of growth in wind capacity in the United States. According to Executive staff, total wind capacity in the United States was estimated at 74 gigawatts[[4]](#footnote-5) (GW) in 2015, and is projected to grow to 404 GW by 2050.

Lastly, wind turbine designs and siting have improved over the past decade, significantly reducing the impacts on bird and bat populations.

**ANALYSIS**

Proposed Ordinance 2016-0035 authorizes the Executive to execute a service agreement for the purchase of renewable energy with Puget Sound Energy. The agreement is Attachment A to the Ordinance. The agreement is the standard agreement that PSE is using for all customers of the Green Direct program and has been approved by the Washington State Utilities and Transportation Commission. The agreement is an attachment to PSE's Schedule 139 that established and defines the Green Direct program. According to PSE, amending this agreement would require approval from the Washington State Utilities and Transportation Commission and potentially the other customers that have already submitted their completed agreements. This process could significantly delay the development of the project and launch of the program.

According to Executive staff, the Proposed Ordinance appears to represent minimal risk to the County while ensuring significant progress on climate change and renewable energy commitments in the Strategic Climate Action Plan. If the facility is not built or is not operated successfully, King County would not be responsible for those losses. By entering into a fixed price contract, the county secures greater certainty for the cost of energy over the term of the agreement. There is the potential for a higher incremental cost of power during the term of the agreement, if the average annual increase in the price of conventional energy is lower than the Green Direct contracted annual price increase of two percent a year. However, the Seventh Regional Power Plan, a robust assessment of power pricing trends, projects an average annual increase in power prices of three percent.

Proposed Ordinance 2017-0035 and the attached agreement have been reviewed by the Prosecuting Attorney’s Office. The major terms of the agreement are summarized below.

**Length of Agreement:** Green Direct Power is available in 10, 15, and 20 year terms with slightly lower rates for longer terms. The Executive is proposing a 10 year term in order to strike a balance between securing this renewable source now and the benefits this brings for emissions reduction, while keeping the County’s options open for future renewable energy purchases given market projections for continued decline in renewable energy pricing.

As specified in Section 6 of the agreement, the term begins in 2019 following commencement of the operation of the wind facility. The agreement terminates at the end of 2028.

**Facilities to be serviced:** The County agrees to purchase renewable energy for 100 percent of the metered electricity for all of the service addresses in Attachment B, which includes the service address of 196 meters. Some facilities have more than one meter. According to Executive staff, this includes about 98.3 percent of metered facility electricity use served by PSE. Executive staff report they only included those facilities for which they are certain that the county will occupy for the terms of the agreement.

Additionally, the obligation can moved from one location to another.

The table below lists the ten facilities on Attachment B with the highest electrical use.

**Table 1**

|  |  |
| --- | --- |
| **Facility** | **Average Yearly Kilowatt** |
| South Treatment Plant (Renton) | 58,000,000 |
| Regional Justice Center (Kent) | 10,276,800 |
| Brightwater Influent Pump Station (Bothell) | 10,036,369 |
| Cedar Hills Landfill (Maple Valley, multiple meters) | 4,655,568 |
| KCAC Pool (Federal Way) | 3,206,631 |
| Transit East Base (Bellevue) | 2,552,800 |
| Heathfield Pump Station (Bellevue) | 2,316,757 |
| Sunset Pump Station (Bellevue) | 2,219,650 |
| Juanita Bay Pump Station (Kirkland) | 2,025,601 |
| Renton Road Maintenance Complex | 1,980,656 |

**Rates:** The rates for the renewable energy (Table 2) are stated in the agreement and include a fixed rate increase of 2 percent per year. Charges under this schedule are for the price of the electricity itself,[[5]](#footnote-6) which is currently approximately 50 percent of charges. The non-energy charges the County currently pays as part of its electrical bills, including transmission and distribution, billing, customer service, are subject to change based on WUTC filings.

**Table 2**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Calendar Year** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** |
| **Rate per kWh** | $0.05111 | $0.05213 | $0.05318 | $0.05424 | $0.055321 | $0.05643 |
|  |  |  |  |  |  |  |
| **Calendar Year** | **2025** | **2026** | **2027** | **2028** |  |  |
| **Rate per kWh** | $0.05756 | $0.05871 | $0.05989 | $0.06108 |  |  |

**Renewable Energy Credits (RECs):** Section 3 of Schedule 139 defines RECS as the environmental attributes associated with one megawatt-hour of renewable electricity generated and delivered to the power grid. RECs are commonly bought and sold. However, Section 3 of the agreement requires the RECs be transferred to King County and or retired by PSE. The RECs may not be resold or transferred to another party. As a result, King County can include the renewable energy generation towards its GHG emission reduction targets.

**If there is inadequate wind energy:** Section 9 of the agreement provides that if the wind energy is not available beginning in 2019, the agreement will be delayed to align with the resource availability. If the energy from the facility is insufficient in any calendar year to satisfy the County’s full requirements (for example, the facility underperforms in a given year), the Company will source RECs from other resources for the same net cost as would be collected under this agreement for the remainder of the year. If, at the Company’s determination, the wind facility will not provide adequate energy on an ongoing basis to meet the County’s full requirements, then PSE may terminate the agreement.

**Energy Efficiency:** The County is charged for actual electricity use and thus will not be penalized for any energy efficiencies at the participating facilities (Section 11).

**Termination:** As noted above, the agreement (at Section 9) specifies that PSE may terminate the agreement if, at the Company’s determination, it determines there is not sufficient energy to meet customer’s needs. Schedule 139 also allows for PSE to file a request with the WUTC at any time to discontinue this program. If King County terminates the agreement, it will be required to pay the net cost of the remaining renewable energy that was to be delivered to the County for the remaining contract term.

**Consistency with King County’s Environmental Commitments**

As discussed below, Proposed Ordinance 2017-0035 is consistent with the County’s commitments in the Strategic Climate Action Plan and Ordinance 17971.

**Strategic Climate Action Plan (SCAP)**

Participation in the Green Direct program will help the County make significant progress towards several of the goals in the SCAP.

SCAP Goal: Reduce total emissions from government operations by 25 percent by 2020.

Since energy use energy use is a significant contributor to the GHG emissions from government operations, switching to wind energy from the Green Direct program will reduce total emissions across all sources by 10 percent.

SCAP Goal: consume renewable energy equal to 70 percent of government operation facility energy consumption by 2020 and 85 percent by 2025.

As of 2014, King County government consumed 64 percent renewable energy, including hydropower and biogas, versus the amount of energy consumed in its facilities. The purchase of PSE Green Direct wind power will enable the county to achieve the 2020 70 percent consumption goal and put the county at approximately 80 percent compared to the 85 percent 2025 target. According to Executive staff, the 2025 target will be attained by working to source carbon-free electricity from Snohomish Public Utility District, and reducing fossil fuel natural gas and propane use at facilities.

SCAP Goal: by 2025, all electricity supplied for government operations should be greenhouse gas neutral.

In 2014, approximately 71 percent of the electricity consumed by King County government was greenhouse gas neutral. After wind electricity is sourced from PSE at the facilities signing on to Green Direct, approximately 95 percent of the county’s electricity will be greenhouse gas neutral. The remaining non-greenhouse gas neutral electricity is a small percentage of the power from Snohomish Public Utility and the small percentage of the county’s PSE load (primarily leased facilities) not signing on to Green Direct.

SCAP Goal: Work with utilities to increase countywide renewable electricity use 20 percent beyond 2012 levels by 2030, limit construction of new natural gas-based electricity power plants, and support development of increasing amounts of renewable energy sources.

According to Executive staff, other than for Anacortes and Western Washington University, if all of the other available Green Direct power were to be purchased by governments and businesses in King County, it would represent less than three percent of the electricity PSE supplies to all of King County. As such, it would be a significant step in the right direction, but by itself will not get the county near the 20 percentage point renewable energy increase by 2030 at the community (countywide) scale. As noted in the ordinance statement of facts, it is important that King County continue to work in partnership with utilities, cities and businesses to seek further energy conservation and clean, renewable energy supplies for all Puget Sound Energy customers.

**Ordinance 17971—carbon neutral goals**

Ordinance 17971, adopted in February 2015, requires that the Wastewater Treatment and Solid Waste Divisions of the Department of Natural Resources and Parks be carbon neutral by 2025. A carbon neutral operation is one in which there are no net emissions of carbon dioxide or other greenhouse gas emissions (GHG) as part of its operations.

As required by Ordinance 17971, DNRP’s emissions calculations are now reviewed by an independent third party. In 2016, DNRP hired two firms Cascadia Consulting and SCS Engineers to conduct the independent review. Based on that review, DNRP updated the emissions data for both SWD and DNRP. Based on the revised data shown in Table 3, SWD estimates switching to Green Direct power will reduce the net emissions by 40 percent assuming 2015 data.

**Table 3**

**Solid Waste Division - 2015 GHG Emissions Sources and Removals[[6]](#footnote-7)**

|  |  |
| --- | --- |
| **Sources and Removals** | **GHG emissions\* (MTCO2e)** |
| Purchasing GHG Emissions | 9,396 |
| Vehicle Fuel Use | 10,252 |
| Building Energy Use (almost entirely electricity) | 3,543 |
| Fugitive Emissions: Cedar Hills Regional Landfill | 1,949 |
| Fugitive Emissions: Closed Landfills | 4,564 |
| *subtotal divisional GHG emissions* | *29,704* |
| GHG REMOVALS | |
| Transfer station recycling | -21,000 |
| ***Net (sources minus removals)*** | ***8,704*** |

Based on the revised emissions data for WTD shown below in Table 4, the use of wind energy will reduce the net emissions by just more than half of net emissions.

**Table 4**

**Wastewater Treatment Division - 2015 Greenhouse Gas (GHG) Emissions Sources and Removals2**

|  |  |
| --- | --- |
| **GHG Emissions Sources and Removals2** | **GHG emissions\* (MTCO2e)** |
| Purchasing GHG Emissions | 67,377 |
| Vehicle Fuel Use | 4,344 |
| Building Energy Use (mostly electricity) | 40,492 |
| Fugitive Emissions: Wastewater Conveyance System & Onsite at Plants | 5,673 |
| subtotal divisional GHG emissions | 117,885 |
| GHG REMOVALS |  |
| Loop Biosolids | -37,623 |
| Renewable Energy (South Plant) | -9,580 |
| **subtotal divisional GHG removals** | **-46,843** |
| **Net (sources minus removals)** | **71,042** |

**FISCAL IMPACT**

Executive staff prepared a fiscal note (Attachment 3) showing an incremental annual cost of $305,633 for 2019-2020 and an incremental cost of $76,089 for 2021-2022. The fiscal estimates are based on the forecast from the Northwest Power and Conservation Council in 2016 that standard electricity prices will increase by three percent annually. If these assumptions prove accurate, beginning in 2022-2023, under this agreement King County will pay less for the electricity component of its bill than it would purchasing standard power.

The fiscal impact to divisions is shown in the table below.

**Table 5**

|  |  |  |
| --- | --- | --- |
| **Division** | **2019/2020** | **2021/2022** |
| Wastewater Treatment Division | $ 216,114 | $53,803 |
| Parks Division | $12,802 | $3,187 |
| Solid Waste Division | $17,936 | $4,465 |
| Water and Land Resources Division (Flood) | $1,625 | $405 |
| Road Services Division | $5,523 | $1,375 |
| Transit Division | $12,297 | $3,061 |
| Facilities Management Division | $39,337 | $9,793 |
| **TOTAL** | **$305,633** | **$76,089** |

1. From Schedule 139, Customers must have a minimum aggregated load of 10 million kWh annually with PSE, or be a municipal, county, state or federal institution. [↑](#footnote-ref-2)
2. RES Americas secures financing, builds project, operates the facility and sells the wind power to PSE [↑](#footnote-ref-3)
3. A kilowatt is 1,000 watts [↑](#footnote-ref-4)
4. A gigawatt is billon watts [↑](#footnote-ref-5)
5. Electricity cost includes the cost of the renewable energy certificates, system losses, taxes, and also costs for billing system updates and management and reporting of the RECs. Per state law and WUTC rule, none of these costs can passed on to other ratepayers. [↑](#footnote-ref-6)
6. Removal refers to actions that take existing greenhouse gases out of the atmosphere [↑](#footnote-ref-7)