

CITY OF BELLEVUE
CITY COUNCIL

Summary Minutes of Study Session

May 4, 2015
6:00 p.m.

Council Conference Room
Bellevue, Washington

PRESENT: Mayor Balducci, Deputy Mayor Wallace, and Councilmembers Chelminiak, Lee, Robertson, Robinson, and Stokes

ABSENT: None.

1. Executive Session

Deputy Mayor Wallace opened the meeting at 6:01 p.m., and declared recess to Executive Session for approximately 20 minutes to discuss one item of property acquisition.

The meeting resumed at 6:43 p.m., with Mayor Balducci presiding.

2. Study Session

- (a) Presentation of the Independent Technical Analysis of the Energize Eastside project authorized by Resolution No. 8857 through a professional services agreement with Utility Systems Efficiencies, Inc. (USE)

City Manager Brad Miyake introduced the presentation of the findings of the independent technical analysis of Puget Sound Energy's (PSE) Energize Eastside project by Utility Systems Efficiencies, Inc. (USE), the City's consultant authorized by Resolution No. 8857 through a professional services agreement.

Mike Brennan, Director of the Development Services Department (DSD) introduced Jennifer Geer and Peter Mackin of Utility Systems Efficiencies, Inc. (USE).

Mr. Brennan recalled that the 1993 Comprehensive Plan reflects PSE's identification of future electrical facility needs. Following the wind storm in 2006, Comprehensive Plan policies were added in 2007 to address the siting of electrical facilities. The Land Use Code was amended in 2008 with specific requirements for the permitting and mitigation of electrical facilities. The Electrical Reliability Study was completed in 2011. This year, the consultant was hired to conduct an independent technical analysis of PSE's proposal for its Energize Eastside project.

Mr. Brennan summarized the City's public engagement process to address the Energize Eastside project, which included a community forum on June 3, 2014. The Council has received briefings from PSE and, earlier this year, authorized the independent analysis by the consultant.

Ms. Geer, USE, presented the findings of the independent technical analysis, which focused on three key questions: 1) Is there a need for the Energize Eastside project to address growth in Bellevue?, 2) Is the project needed to address the reliability of the electric grid on the Eastside?, and 3) Is the project needed to address regional flows including imports and exports to Canada? She said the answer to all three questions is yes.

Ms. Geer described USE's review of the forecasting methodology. She said the North American Electric Reliability Corporation (NERC), a non-profit international regulatory authority, requires weather normalizing in developing demand forecasts. She described how weather normalizing is used to project demand, as well as how econometric and demographic data are incorporated into the forecast. She noted that the Puget Sound Regional Council's (PSRC) 2040 Plan projects 32 percent population growth and 42 percent regional employment growth.

Another factor in developing the electrical demand forecast is to consider known major projects and known major load changes based on growth in commercial square footage and residential units. Ms. Geer noted that some of this information is confidential with certain developers.

Ms. Geer said the main way to decrease demand is through conservation, although some energy might come from alternate sources. The forecast is developed for both overall energy consumption and peak demand. Ms. Geer described PSE's 2014 Eastside Demand Forecast which reflects a higher growth rate. However, there is lower forecasted demand in 2017-2018 because the actual peaks for 2012-2013 and 2013-2014 were lower than forecasted.

Responding to Mayor Balducci, Ms. Geer said the forecast was developed in 2012 for winter 2012-2013 and for winter 2013-2014. Based on the actual peaks for those years, the weather normalized forecast was lower for 2013-2014.

In further response, Ms. Geer said projections for 2017-2018 changed after the 2013 forecast, when compared to the 2012 forecast.

Responding to Councilmember Robertson, Ms. Geer said the forecasting methodology changed between 2012 and 2014. In 2012, the forecast methodology examined PSE on a service territory level. For the 2014 forecast, PSE pulled information at the county level and the Eastside census tract level. Therefore, the 2014 forecast was more accurate.

In further response, Ms. Geer said the current methodology is more accurate because specific information was available for the Eastside census tracts. She said USE did not analyze the 2012 forecast methodology; they only analyzed the 2014 methodology. However, Ms. Geer said the 2014 methodology makes more sense.

Mr. Brennan said the current methodology reflects more reliable and specific information about the Eastside versus the earlier county-wide forecast.

Mayor Balducci said her understanding was that conducting this particular analysis was part of the reason for the delay in the completion of the report. She thought the City was waiting for the new forecast based on the new methodology to feed into USE's analysis. Mr. Mackin confirmed that understanding.

Responding to Councilmember Lee, Ms. Geer reiterated that the key change in the methodology was to use more specific Eastside area data instead of PSE's countywide averaged data. She said the 2014 methodology reflects a lower demand for 2017-2018. In further response, Ms. Geer reiterated that USE did not analyze the 2012 methodology. Mr. Mackin said all of USE's work was based on the 2014 forecast.

Continuing, Ms. Geer described the system capacity for the Eastside forecast. By 2017-2018, system elements are overloaded, and by 2019-2020, Eastside customers are put at risk.

Councilmember Robertson questioned whether there were assumptions based on conservation and alternate energy sources. Ms. Geer said the 100 percent conservation forecast considered more than 4,000 measures. Lighting, conservation, renewable energy, and other standards are factored into the conservation projection. The maximum level of anticipated conservation is referred to as 100 percent conservation. Ms. Geer said solar energy is great for energy consumption over a specific sunny time period. However, solar energy has little to no effect on winter peak demand. Similarly, measures such as insulation help reduce energy consumption but do not have much of an effect on peak demand. In further response, Ms. Geer said the use of LED lights has very little impact on peak energy demand.

Continuing, Ms. Geer said that, in summer 2018, there are not only overloaded elements but there are customers at risk of outages, as well as load shedding. Load shedding is an intentional electric power shutdown to a portion of the system to protect the network from a greater impact or damage.

Responding to Deputy Mayor Wallace, Ms. Geer said the Eastside Forecast Peak Demand graph reflects weather normalized actual numbers. Mr. Wallace said demand flattens from 2012 to 2014. However, demand increases fairly sharply beyond that point. He said the City has learned the hard way in working with the Cascade Water Alliance that demand forecasts based on growth projections several years ago over-estimated current and future demand. This results in large, expensive projects that are not needed.

Mr. Wallace questioned the rationale for the increase in demand beyond 2014. Ms. Geer said there was one data point for which she checked with PSE. That data assumed an extreme weather scenario and she said that could be what is driving the increase in demand.

Mayor Balducci said she understands the effect of weather. However, key questions from the Council are: What is underlying the forecast? Is it due to increased population, increased jobs, and/or increased/decreased average usage?

Councilmember Chelminiak referred to page 31 of the report and noted that it does not list the Tateuchi Center. He said the benefit of an Eastside forecast is the inclusion of Eastside projects. He observed that more buildings will demand more energy. While new homes are more energy efficient than in the past, the homes are getting much larger. He found that to be an interesting factor in why the load forecasts are increasing.

Councilmember Robinson noted that, before the independent analysis, there were two data points: 2012 and 2013. Ms. Geer clarified that there were more data points prior to 2011-2012. However, that information is not shown on the graph included in the presentation. Ms. Robinson said she would like to see a graph of the historical data points that are factored into the forecasted demand. She shares Mr. Wallace's concern that the demand is flat between 2012 and 2014, but increases relatively sharply beyond that point.

Mr. Brennan said the flat spot is possibly an anomaly. He said population growth and job growth are driving increased demand, especially when many of the new jobs are technology companies that have high energy usage.

Mayor Balducci observed that the Council understands there is growth. However, what is not known is the per capita or per household energy usage. The specific forecast in the presentation is based on math which is based on certain data. What exactly does that data demonstrate? How good are the assumptions that went into the calculation of this specific forecast? Ms. Balducci said she needs to understand whether the assumptions underlying the math equation that results in the forecast are realistic and accurate.

City Manager Miyake said staff will get more information to the Council.

Councilmember Stokes observed that perhaps the change in methodology is the reason for the sharp increase in demand beyond 2014. If so, this needs to be demonstrated for the Council.

Councilmember Robertson questioned the extreme weather scenario assumed by PSE. Ms. Geer said weather normalizing seeks to eliminate weather variability in the forecast, and the normalizing process is based on a great deal of historical data. If there happens to be a season with something very abnormal and there is no history to account for anything similar, the normalizing process might not capture it accurately. Ms. Geer reiterated that there was one data point that she checked with PSE, and she was told it was related to an unusual weather situation. She would need to go back and verify which year reflects that assumption.

Councilmember Robertson said it would be helpful to understand actual usage and the specific data driving the forecast. She said the report lists projects, mostly in the Downtown and Bel-Red corridor, that are driving demand. However, PSE's map does not indicate where demand is the highest.

Councilmember Robertson said it would be useful to have a clear understanding of usage by geographic area within the City and the Eastside. She said this is important in directing conservation efforts. Also, the Land Use Code has a requirement that alternatives be studied

based on the area being served. If the transmission lines are needed due to growth in Bel-Red and Downtown, the alignment should be studied within that context.

Ms. Robertson asked whether the consultant could provide a map showing demand growth by geographic area within the community. Ms. Geer said they attempted to do so using substation loads. However, the substations are not necessarily located exactly where the load originates and the consultant felt the resulting map would be misleading. She said data for usage by geographic area was not made available by PSE. Councilmember Robertson questioned how that data could be developed. Ms. Geer said that would need to be addressed again with PSE.

Mayor Balducci questioned how that information would be used. Councilmember Robertson said the Land Use Code requires that alternatives be studied based on the areas to be served by new electrical infrastructure. Ms. Balducci observed that a large part of the demand is the Downtown. However, all transmission lines cannot be aligned through the Downtown.

Ms. Robertson reiterated that she would find the data to be useful as part of the analysis. A policy question would be whether it would be fair to run the lines over residential areas if they are not the areas to be served by the new infrastructure. Ms. Balducci observed that collecting the specific data would not change what is already known about which areas of the community are demanding more electrical capacity.

Councilmember Chelminiak said he met with the consultants before this meeting. He suggested moving on to hear more information they are prepared to present.

Continuing with the presentation, Mr. Mackin described how the major power outage in the northeastern United States in 2003 drove the federal requirement to comply with NERC standards. NERC standards dictate that a utility must be able to serve the expected demand/load as well as regional transmission requests, including to and from Canada, when transmission outages occur. The standards require two transmission lines for redundancy.

Mr. Mackin described why transmission outages are held to a higher standard than distribution outages. The probability of the former is much lower than the latter. However, a transmission outage affects a large number of customers. NERC standards dictate that a utility must be prepared for the worst, even if the probability of a severe event is low.

Mr. Mackin described the Optional Technical Analysis (OTA) of models obtained from PSE. The consultant studied the models and verified that the loads were consistent with the forecast and that the transmission flows were accurately estimated. Mr. Mackin described the scenarios that were analyzed. Under all scenarios studied, there was a local need for increased capacity. A number of the scenarios would not meet NERC standards.

Mr. Mackin repeated the three questions identified at the beginning of the presentation and stated that the answer is yes for each of them: 1) Is there a need for the Energize Eastside project to address growth in Bellevue?, 2) Is the project needed to address the reliability of the electric grid on the Eastside?, and 3) Is the project needed to address regional flows including imports and exports to Canada?

Councilmember Robertson noted Mr. Mackin's comment that NERC standards require two outbound transmission lines. Her understanding is that PSE's analysis was completed, not looking at two lines out, but with all local generation turned off. She questioned whether that is part of the NERC standard.

Mr. Mackin said the PSE analysis assumed low generation west of the Cascade Mountains. USE's sensitivity analysis looked at the average generation for peak times west of the Cascades. PSE studied the total west-of-Cascades generation of 180 megawatts. USE increased that to 680 megawatts for its analysis. That is reflected in OTA scenario #4. Responding to Ms. Robertson, Mr. Mackin said 680 is less than capacity. However, it is the average expected generation.

In further response to Ms. Robertson, Mr. Mackin said one overload is eliminated by increasing the generation. He confirmed that, if flows to Canada were eliminated, there is only one potential outage. She questioned whether this could be solved by adding a transformer at the top of the hill. Mr. Mackin said it possibly could. He has experienced this type of scenario in the past. He found that, if you address an overload on a transformer by adding another transformer, transmission lines below that transformer are overloaded from the increased power flow. However, he acknowledged it is a potential fix and it would not meet NERC standards.

Councilmember Robertson questioned whether the Energize Eastside project includes a component to serve the Canadian need on the BPA (Bonneville Power Administration) lines. Mr. Mackin said USE's task was to assess the need for the Energize Eastside project, and they found that there is a need. That does not necessarily mean that PSE's recommended project is the only alternative. There might be others but USE did not study alternatives.

Ms. Robertson said the City wants to apply USE's work to preparing the environmental impact statement (EIS). She said it is interesting that, with Canada taken out, there is only one overload. She questioned the actual number of megawatts used for the Canadian transmission and power flow simulation. Mr. Mackin said the initial cases had 1,500 megawatts flowing to Canada in the winter. When USE looked at no flow, they reduced that assumption to zero. In the summer, the analysis looked at 3,150 megawatts imported from British Columbia to Washington.

Ms. Robertson said she has a number of additional questions which she sent to staff. She would like all responses in writing for the full Council.

Councilmember Robertson referred to the report by PSE's contractor that looked at how to potentially save energy. The study found a potential 56 megawatts of energy savings. She questioned whether this was factored into any of the estimations made by USE for flow, growth, demand, and/or peak. Ms. Geer said the forecast incorporated a great deal of conservation. By 2017-2018, the Eastside forecast incorporated 51 megawatts of conservation. By 2031, the forecast incorporated 135 megawatts of conservation.

Councilmember Robertson requested information on whether these are the same conservation measures and/or energy savings found by PSE's contractor. Ms. Geer said she did not have that information.

Councilmember Chelminiak observed that the report does a good job of addressing a complicated issue. He said page 57 of the USE report references options from the Columbia Grid Study. One involves maintaining the 115 kV line through Bellevue. This could be achieved by upgrading the Maple Valley Sno-King and Bothell Sno-King lines to 30 kV with the re-conductoring of one line and rebuilding of one line. Under that scenario, Bellevue would be able to keep a 115kV line. However, there was an indication that this would not meet the regional need. Mr. Chelminiak questioned whether this is a viable option to study under the EIS.

Mr. Mackin said that is outside the scope of the independent technical analysis, which focused on the need for the Energize Eastside project. However, as a transmission planning engineer with many years of experience, he said it could be a viable option. It appears that Columbia Grid evaluated the option. However, they did not choose that option for a number of reasons.

Councilmember Chelminiak observed that USE studied Energize Eastside to determine whether the project is about the flow to Canada. Mr. Mackin said they took out the regional flows to determine whether there is still a local need. The analysis indicates there are both regional and local needs.

Mr. Chelminiak questioned the viability of using batteries. He noted a company in the South Everett area that is working on battery projects. What level of battery power would it take to meet the need represented by the Energize Eastside project?

Mr. Mackin said this involves 500 kilowatt batteries that fit within shipping containers. If the Eastside needed to reduce the load by 70 megawatts to meet reliability standards, 140 of these batteries would be required. This equals 700 shipping containers that would have to be located somewhere.

Mr. Mackin said Energize Eastside is building for the long term and would meet load growth for at least 20 years. Batteries would need to be added as demand increased. He said he does not know the economics of this option. Mr. Mackin said the problem is that the need for capacity must be met by 2017-2018. The EIS will take approximately one year so it is important to start the process now rather than waiting to see how the battery method works.

Deputy Mayor Wallace reiterated his concern that the graph from the presentation shows flattened energy demand. However, the Optional Technical Analysis (Appendix B) questions: If the load growth rate was reduced, would the project still be needed? Mr. Wallace said USE answered in the affirmative and said that the "OTA results show that reducing the Eastside average load growth from 2.4 percent to 1.5 percent did not eliminate any overloading elements. There is still project need." Mr. Wallace observed that this is an incomplete answer, especially since there is no indication about the timeframe for the need.

Mayor Balducci summarized that the Council has a number of questions, including those submitted by Councilmember Robertson in writing to staff. Ms. Balducci said it is important to have responses to the questions from USE, PSE and/or City staff as appropriate. She said written answers are needed to fully understand the analysis.

Mayor Balducci asked the City Manager to get back to the Council about how that will be done. She clarified that she is not asking for an expanded scope but for explanation and information regarding the analysis already completed by USE. Mr. Miyake said more time will be needed to have the consultants review and develop responses to the questions.

Deputy Mayor Wallace observed that the USE report is somewhat apologetic about PSE's study. He questioned whether the consultant could list the items it found to be deficient in PSE's work. Could they prepare critical observations about PSE's reports and justification for the project?

At 8:02 p.m., Mayor Balducci declared recess to the Regular Session.

Myrna L. Basich, MMC
City Clerk

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