WHISTLING RIDGE ENERGY LLC
NATHAN LARSON
PREFILED TESTIMONY
EXHIBIT NO. 11.00

BEFORE THE STATE OF WASHINGTON

ENERGY FACILITY SITE EVALUATION COUNCIL

In the Matter of Application No. 2009-01: WHISTLING RIDGE ENERGY LLC; WHISTLING RIDGE ENERGY PROJECT	EXHIBIT NO. 11.00

APPLICANT'S PREFILED DIRECT TESTIMONY

WITNESS #12: NATHAN LARSON

Q Please state your name and business address.

A My name is Nathan Larson, and my business address is 1501 4th Avenue, Suite 1400, Seattle, Washington 98101-1616.

Q What is your present occupation and profession, and what are your duties and responsibilities?

A I am a Senior Transportation Engineer with URS Corporation, an international environmental and engineering consulting firm providing services to organizations such as Whistling Ridge Energy LLC. URS Corporation assists organizations in

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analyzing environmental impacts and land use compatibility of projects such as the Whistling Ridge Energy Project. I have nearly sixteen years of experience in both transportation analysis and traffic engineering.

Q Please identify what has been marked for identification as Exhibit No. 11.01.

A Exhibit No. 11.01 is a résumé of my education background and employment experience.

Q Are you sponsoring any portions of the Application for Site Certification for the Whistling Ridge Energy Project?

A Yes. I am sponsoring the following sections:

Section 2.19.5	Alternative Construction Access
Section 2.19.6	Alternative Haul Routes and Methods of Transport
Section 4.3	Transportation

Testimony regarding the issue of road improvements within the Columbia River Gorge National Scenic Area (Scenic Area) is being provided by another witness.

Q Are you sponsoring any appendices or other documents that are part of the Application for Site Certification?

A No.

Q Are you familiar with the identified sections of the Application for Site Certification?

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A Yes. URS prepared the transportation analysis for this Project.

Q Is the information in these sections within your area of authority and/or expertise?

A Yes.

Q Are the contents of these sections of the Application for Site Certification either based upon your own knowledge, or upon evidence, such as studies and reports that reasonably prudent persons in your field are accustomed to rely on in the conduct of their affairs?

A Yes.

Q To the best of your knowledge, are the contents of these sections of the Application for Site Certification true?

A Yes.

Q Do you incorporate the facts and contents of these sections as part of your testimony?

A Yes.

Q Are you able to answer questions under cross examination regarding these sections?

A Yes.

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Q Do you sponsor the admission into evidence of these sections of the Application for Site Certification?

A Yes.

Q Are there any modifications or clarifications to be made to those portions of the Application for Site Certification that you are sponsoring?

A Yes, the traffic volume information for years 2011 and 2012 provided in Table 4.3-4 for the west and east junctions of Cook-Underwood Road and SR 14 were mistakenly reversed. The information provided for the west junction should have been the information for the east junction, and the each junction information should have been for the west junction. The corrected table is as follows:

Table 4.3-4 (Revised) Estimated 2011 and 2012 Traffic Volumes without the Project

Location	West Junction of Cook-Underwood Road with SR 14		East Junction of Cook-Underwood Road with SR 14	
	2011 PM Peak Hour (4:00 to 5:00)	2012 PM Peak Hour (4:00 to 5:00)	2011 PM Peak Hour (4:00 to 5:00)	2012 PM Peak Hour (4:00 to 5:00)
Eastbound SR 14	100	100	110	110
Westbound SR 14	230	240	260	260
Southbound Cook-Underwood Road	10	10	10	10

I also would like to supplement the information on 2009 traffic volumes and estimated 2011-2012 traffic volumes to include information on estimated AM peak volumes without the Project.

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Estimated 2009 AM Peak Hour Traffic Volumes
at West and East Junctions of SR 14 with Cook-Underwood Road
Without the Project

Location	West Junction of Cook-Underwood Road with SR 14 AM Peak (7:00 - 8:00 am)	East Junction of Cook-Underwood Road with SR 14 AM Peak (7:00 - 8:00 am)
Eastbound SR 14	150	170
Westbound SR 14	70	70
Southbound Cook-Underwood Road	10	10

Estimated 2011 and 2012 AM Traffic Volumes
Without the Project

Location	West Junction of Cook-Underwood Road with SR 14 AM Peak (7:00 - 8:00 am)	East Junction of Cook-Underwood Road with SR 14 AM Peak (7:00 - 8:00 am)
Year 2011		
Eastbound SR 14	150	170
Westbound SR 14	70	70
Southbound Cook-Underwood Road	10	10
Year 2012		
Eastbound SR 14	160	170
Westbound SR 14	70	70
Southbound Cook-Underwood Road	10	10

I also want to clarify how specialized trucks transporting oversize and/or overweight loads, such as the tower sections, the nacelles and turbines, and blades, will access the Project site. These vehicles will use the east junction of SR 14 and Cook-Underwood Road and the east junction of Cook-Underwood Road and Willard Road, and thus would not cross the bridge over the Little White Salmon River at approximate MP 5.5 on Cook-Underwood Road. Vehicles with legal loads and legal sizes could utilize either the east or west junction of SR 14 and Cook-Underwood Road and either the east or west junction of Cook-Underwood Road and SR 14.

Q How is the Applicant proposing to access the Project site from SR 14?

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A Access to the proposed Whistling Ridge Energy Project site would be provided by Skamania County roads that extend northward from SR 14 (*i.e.*, Cook-Underwood Road and Willard Road), as well as an existing private logging road that is outside the Scenic Area (*i.e.*, West Pit Road). This is Route 3 in the Application. A new direct connection outside of the Scenic Area would need to be built between Willard Road and West Pit Road. West Pit Road connects to a network of existing private logging roads located on S.D.S. Co., LLC and Broughton Lumber Company property. These logging roads would provide access to most areas where Project facilities would be located (see Figures 4.3-1 Project Site Roadway Network and 4.3-2 4.3-2a and 4.3-2b, Other Roads with Potential Impact in the Application).

Q Why were other routes considered and described in the Application?

A Other access routes were considered and described in Section 2.19, Analysis of Alternatives, of the Application because WAC 463-60-296 requires an analysis of alternative access routes. Section 4.3, Transportation, of the Application describes the access route the Applicant is proposing to use.

Q What is your understanding concerning alternative haul routes for bringing material and equipment to the site?

A All wind energy components, including tower sections, the nacelle and turbines, and blades would be shipped to either the Port of Longview or Port of Vancouver and then be transported by any or all of the following three modes of travel:

- Specialized trucks along State, County, City, and private roadways;
- Burlington Northern Santa Fe (BNSF) rail lines running parallel to SR 14; and/or

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- Barge and tug boat up the Columbia River and through the lockage facility at the Bonneville Dam to the SDS Lumber Company industrial dock in Bingen, Washington.

Q Why are there three different methods of transport under consideration?

A It is because of the size of the loads, and the roadway restrictions that exist between the Project site and the Port of Longview and Port of Vancouver to the west. Trucks transporting wind energy components could have loads as high as 17.5 feet measured from the ground to the highest point of the load, as wide as 14.5 feet or as long as 150 feet.

Q Can you describe what type of restrictions exist?

A Oversize loads would encounter restrictions and/or prohibitions along SR 14 between Vancouver, Washington and the west junction of SR 14 and Cook-Underwood Road at MP 56.28 due to the length and/or width of the loads. The section of SR 14 between Bingen, Washington and the east junction of SR 14 and Cook-Underwood Road at milepost (MP) 63.32 has a length restriction of 125 feet. Cook-Underwood Road near its northern most point at approximate MP 5.5 contains a bridge that crosses the Little White Salmon River. Crossing this bridge with oversize or overweight loads would require a haul route agreement with Skamania County.

Q Please describe the route and any restrictions on using railroads to transport Project components.

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A Rail may be used to transport the wind energy components from either of the Ports to the SDS Lumber Company facility in Bingen. Wind energy components on rail cars can be up to 14.5 feet in width, up to approximately 15 feet in height, and as long as 150 feet. The BNSF rail line between Vancouver, Washington and the SDS Lumber Company facility in Bingen, Washington, may not be able to accommodate loads with widths in excess of 14 feet. This may preclude transport of the bottom tower sections using rail. The wind energy nacelles, turbines, and blades could be transported along the BNSF line to the SDS Lumber Company facility. BNSF could transport the wind energy components on standard or heavy-duty 89-foot long flat rail cars.

The wind energy components would be off-loaded at the SDS Lumber Company industrial facility to a staging location to be determined and loaded onto specialized trucks for transport to the proposed Project site. Transport of wind energy components using specialized trucks from the SDS Lumber Company industrial facility to SR 14 would require the use of Maple Street in the City of Bingen, Washington for approximately 0.25 mile.

Q When would the third option, that of using barges or tugs, be used?

A The wind energy components would be off-loaded from a ship at either of the Ports, loaded onto barges, and then transported upriver to the Bonneville Dam using tug boats. The barges and tugs would by-pass the Bonneville Dam via the lockage facility, and continue upriver to the SDS Lumber Company industrial facility. There would be no applicable oversize or overweight restrictions using barges as a transport mode for wind energy components at either of the Ports, on the Columbia River, or at the lockage facility at the Bonneville Dam. Coordination with the Bonneville Dam Project Office would be required to determine optimal times for lockage use.

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Like the use of rail, this option would still require using specialized trucks to transport the wind energy blades from the SDS Lumber Company industrial facility to the east junction of SR 14 and Cook-Underwood Road at MP 63.32, and this section of SR 14 has a length restriction of 125 feet. However, the Goldendale office of the Washington Department of Transportation has stated that this restriction could be waived for Project trucks using this stretch of SR 14 under specific conditions. Pilot cars would be required and the involvement of the Washington State Patrol may be required. Such waivers of length restrictions on state highways are not uncommon.

Q Which method of hauling equipment will be selected?

A All three methods may be used, depending on the size of the equipment, its weight, and which Port it is shipped to.

Q Would you please summarize the existing traffic volumes in the vicinity of the Project site?

A We obtained 2009 traffic volumes for the west and east junctions of SR 14 and Cook-Underwood Road as these would be the two intersections most affected by construction traffic and equipment and material hauling. At the west junction in the PM peak hour of 4 pm to 5 pm, there were 90 vehicles per hour heading eastbound on SR 14, 220 vehicles per hour heading westbound on SR 14, and 10 vehicles per hour coming southbound on Cook-Underwood Road making a turn onto SR 14. At the east junction, the volumes were slightly higher with 100 vehicles heading eastbound and 240 vehicles heading westbound. The volume of traffic heading south on Cook-Underwood Road turning onto SR 14 was the same at 10 vehicles per hour.

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Q Are vehicles making a turn onto SR 14 during the PM peak hour currently delayed while waiting for a break in the traffic in order to make a safe turn?

A Traffic delay is measured in terms of Level of Service (LOS). The *Highway Capacity Manual* published by the Transportation Research Board is generally used when determining LOS. The *Highway Capacity Manual* defines LOS using a letter scale from A to F. LOS A is defined as minimal or no delay to vehicles and LOS F is defined as extreme delays to vehicles. At the west junction of Cook-Underwood Road and SR 14, the amount of delay for an eastbound vehicle on SR 14 turning left onto Cook-Underwood Road would be approximately 8 seconds. For the driver on Cook-Underwood Road waiting to make either a left or right turn onto SR 14, the delay is approximately 10 seconds on average. Both would be considered as LOS A, minimal or no delay. At the east junction, eastbound drivers on SR 14 turning left onto Cook-Underwood Road would also have a delay of approximately 8 seconds, also LOS A. For the driver on Cook-Underwood Road waiting to make either a left or right turn onto SR 14, the delay would be approximately 10.2 seconds. The additional 0.2 seconds would result in a LOS B, the grade assigned to a delay of between 10 and 15 seconds.

Q Are traffic volumes along SR 14 expected to increase in the future?

A Yes, without the Whistling Ridge Energy Project, traffic volumes at both junctions of SR 14 and Cook-Underwood Road are expected to increase. At the west junction, traffic volumes are anticipated to increase by approximately 10 vehicles in each direction during the afternoon peak hour. At the east junction, traffic volumes are anticipated to increase by 10 vehicles in the eastbound direction and 20 vehicles in the

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westbound direction. Traffic volumes from Cook-Underwood Road are anticipated to remain the same as 2009, with 10 vehicles turning onto SR 14 during the PM peak hour.

Q Would you please explain why year 2011 and 2012 traffic volumes are important to your traffic analysis?

A Assuming a Site Certification Agreement is approved by the Governor, construction of the Whistling Ridge Energy Project is expected to begin in mid-2011 and last approximately one year, into mid 2012. The traffic impacts of the Project are largely associated with the construction period. After the Project is built and operated, the facility would have an estimated eight to nine employees, so traffic volumes from the Project would be much lower during operation than during the construction period.

Q Would equipment be transported to the Project site throughout the construction period?

A No, oversize and overweight trucks are only expected during an approximate two to three month period when the wind energy components are transported to the proposed Project site. During that period, there would likely be deliveries throughout the day.

Q Would you please describe the numbers of construction workers that are anticipated and how many would be on site at one time?

A During construction, approximately 330 workers total would be employed. During the peak construction period, it is expected that a peak of approximately 265 personnel

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would be on site at the same time, while multiple construction disciplines conduct work concurrently.

Q What is your understanding as to where these construction workers would come from and would they commute on a daily basis?

A Approximately 65 to 75 percent of the construction labor force would most likely be hired from the cities of Portland and Vancouver. Approximately 25 to 35 percent of the workers would most likely be residents of Skamania, Klickitat, and Hood River counties. The respective percentages are based on the relative populations in the cities of Portland and Vancouver when compared to Skamania, Klickitat, and Hood River counties. All construction workers are expected to commute up to approximately 60 miles each way daily to and from the proposed Project site.

Q What assumptions were made in determining where construction traffic would come from?

A For traffic analyses purposes, two worst case scenarios were considered. The first assumes that all vehicles related to the Project during construction would travel through the west junction of Cook-Underwood Road with SR 14. The second assumes that all vehicles related to the Project during construction would travel through the east junction of Cook-Underwood Road with SR 14. In other words, for our analysis, we assumed double the actual amount of anticipated traffic by assigning the total volumes to each of the two junctions. In actuality, some would use the west junction and some would use the east junction, however the proportions that would use each junction are not known at this time. It is also not likely that most construction workers heading

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eastbound on SR 14 would go past the west junction of Cook-Underwood Road and travel to the east junction before turning onto Cook-Underwood Road. In my opinion, the numbers shown in Table 4.3-7 for the east junction for the "worst case scenario" of 100% of the drivers using that junction are over-stated.

Q Would you explain why the traffic analysis focuses on two hours of the day, shown on Table 4.3-7 of the Application as AM and PM peak hours?

A Typical rural highway traffic patterns conservatively assume AM peak hour volumes to be approximately 7 percent of the total daily volumes, and PM peak hour volumes to be approximately 10 percent of the total daily volumes, with a directional split of 70/30. PM peak hour volumes are traditionally observed to be the highest during a given day. A "worst case" traffic analysis scenario is presented for the AM and PM peak hours and includes 7 and 10 percent of the total daily construction vehicles, respectively. Both AM and PM conditions are represented because the two peak hours feature different turning patterns at an intersection. Either could represent the worst case in terms of delay, depending on how traffic is distributed at the intersection.

Q For the traffic volumes shown on Table 4.3-7 of the Application for the construction period, what traffic is included in those numbers?

A Estimated traffic volumes include local traffic not associated with the Project, as well as all vehicles transporting construction workers, materials, and equipment to and from the site, including oversize and overweight trucks.

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Q How would the number of construction workers and the hauling of equipment increase the traffic volumes along SR 14 at the two junctions with the Cook-Underwood Road?

A The increase in traffic volumes would largely be to AM peak hour eastbound traffic on SR 14 and to PM peak hour traffic from Cook-Underwood Road onto SR 14.

Q How much would traffic volumes increase in the AM peak hour during construction?

A Eastbound traffic on SR 14 would increase from 150 vehicles per hour in the AM peak at the west junction with Cook-Underwood Road to approximately 370 vehicles per hour. At the east junction, the eastbound traffic would increased from approximately 170 vehicles per hour in the AM peak to 390 vehicles per hour. In the westbound direction, the traffic volumes would increase from 70 vehicles per hour in the AM peak to 160 vehicles per hour at the west junction, and from 70 vehicles per hour to 170 vehicles per hour at the east junction.

Q Would the increase in traffic cause an increase in delay or LOS for drivers turning left from SR 14 onto Cook-Underwood Road during the AM peak hour?

A Yes, however the delays would be measured in seconds, or fractions of a second. As shown on Table 4.3-8 of the Application, for eastbound drivers on SR 14 waiting to turn left onto Cook-Underwood Road at the west junction, the delay would increase from 7.6 seconds without the Project construction to 8.4 seconds with the Project construction in the AM peak. Either situation would be LOS A.

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Q How much would traffic volumes increase southbound on Cook-Underwood Road at the junction with SR 14?

A For traffic coming south on Cook-Underwood Road, volumes would increase from 10 vehicles per hour without the Project to as many as 285 vehicles with the Project construction activities. Again, because the analysis assumes two "worst case scenarios," with 100% of the construction traffic using the west junction and also 100% using the east junction, the 285 vehicles is the maximum and would likely be less as some traffic would use the other junction.

Q Would the increase in traffic cause an increase in delay or LOS for drivers turning right or left from Cook-Underwood Road onto SR 14 during the PM peak hour?

A For southbound vehicles during the PM peak hour on Cook-Underwood Road waiting to turn either left or right onto SR 14 at the west junction, the delay would increase from 10.1 seconds without the Project to 14.1 seconds with the Project construction. Both delays are considered LOS B. Non-Project related traffic coming southbound on Cook-Underwood Road in the AM peak hour would also experience increased delays while waiting to turn onto SR 14. The wait for this traffic would increase from 9.4 seconds, which is considered LOS A, to 14.7 seconds, a LOS B. The average length of delays would be similar at the east junction (see Table 4.3-8a in the Application). LOS C or better is typically considered acceptable for rural intersections and is the LOS threshold for Skamania County.

Q What would happen to the traffic volumes once the Project is completed and under operation?

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A The facility would employ approximately eight to nine full time employees, but the facility would operate 24 hours per day, so the workers would be on different work shifts to cover the 24 hour period. Traffic volumes of SR 14 would drop back to the levels that were anticipated without the Project for year 2012. The increase in traffic would largely be to the number of vehicles coming southbound on Cook-Underwood Road turning onto SR 14. Those numbers would increase from an estimate of 10 vehicles during the PM peak hour without the Project to an estimated 25 vehicles with the Project. The increase in traffic volumes would cause an estimated 0.1 to 0.3 second increase in delay for vehicles waiting to turn onto SR 14 at either junction with Cook-Underwood Road (see Tables 4.3-10 and 4.3-11 in the Application).

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