

Josh Carey dispatch

Tuesday, May 7th, 2013

Day 1 NZ

I arrived in the airport this morning at 5:50am along with Caleb, Alex, and JP. We met up with Jonathan and Derek by McDonalds and waited for the rest of the crew. After everyone else arrived we had a quick discussion of our plan for the day and then headed out to the vans. The trip was finally getting started.

I had no idea what to expect at this point. It really hadn't hit me yet because of being in the airport or flying for the last 30 hours. I was really excited to tour all of these different energy sites but had no clue about how things were going to be in New Zealand. Once we were on the road it hit me that we were in a different country. Everything was in the metric system, which took some getting used to. Driving on the other side of the road also was a big change. Once we got out of the city the hills started to come about. The grassy, rolling hills were so awesome.

We were on our way to Huntly Power Station to meet a guy named Simon. He was the preventative maintenance engineer and the most seasoned employee, serving the Huntly Power Station for 33 years. We started with a 45-minute presentation of the history of New Zealand's energy and Genesis Energy's contribution to it. Simon talked about the energy portfolio that Genesis offered before getting into the Huntly Power Station. Huntly surprisingly delivers 17% of New Zealand's energy demand. Simon talked about the different units operating and each unit's respective output. The E3P was very impressive, being a combined cycle turbine with efficiency of 54%. Units 1, 2, and 3 are 250MW coal and gas fueled. Simon talked a lot about the Resource Consent Program, which made Huntly make anything they did public and could be contested. There were several extra steps Huntly had to take in order to abide by this program. I feel this could be a big part of our research in relation to environmental impacts in the US. After the presentation we suited up with hard hats and orange vests and began the tour of the facility.

The tour was a great start to the trip. Simon took us to the control room to begin. It was a very clean, computerized facility where they can manage every unit's performance. We then went to see the turbines. They were very large and painted orange, the color of Genesis Energy. The next room housed the hoppers, which fed the coal into the pulverizers then was fed into the boilers. See all of these processes first hand really solidified everything I have learned in the last two semesters. It made me appreciate all of the things I have learned in school. We then went outside to see where the flue gas is cleaned before being released. They remove the ash from the flue gas by passing the gas over electrified cables, which charges the ash particles. These particles are then passed along a plate of opposite charge, which the particles are attracted to. I thought this was very interesting. Another interesting point in relation to the US is they did not have scrubbers to remove the sulfur. This is because of the extremely low sulfur content of the coal. The exhaust gas is mostly made up of CO₂

After the tour, we went to Huntly to get some food before heading to Rotowaro mine. We were denied a tour which we believe was because they are downsizing from the decreased

price of coal. We pulled over so I could give a quick overview of the mine. Raglan was our next destination and is where we would be staying for the night. On the way there we stopped at the viewing area of the Oku Pacu wind farm, where we would be given a tour the next day.

We arrived in Raglan and I was given the privilege of navigating to our youth hostel. It wasn't looking too promising but we made it eventually. It was only two o'clock by the time we arrived. The hostel was called Solescape and had a very environmental and commune focus. The view of the beach was fantastic.

The mountainous coastline went on as far as you could see. They had solar hot water systems for all of the showers. There was a garden planted that we had access to. We stayed in little shacks with three beds each and one with 6 beds.

Before going into town, we stopped at the beach. The sun was getting ready to set which made it even more beautiful than it already was. After leaving the beach, we ate at a local pizza place that was very good. Afterward we went to the beer store and stocked up for the night. When we returned we showered and then hung out on the porch of the central gathering area. The experience was nothing less than interesting. It was very hippie like. We had a nice time on the porch and talked to a few of the people staying there. Most were traveling and staying there for the surf. Overall it was a nice time and we had a great time hanging out together before hitting the hay.