

| Category       | Question Heading  | NRG Answers   |
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| <i>Licence</i> | What is NRG licensed to do?   | <p>Queensland environmental licences are based upon permission to carry out specified Environmentally Relevant Activities (ERAs). The licence ensures that these activities are managed by the company in order to have minimal environmental impact.</p> <p>NRG's ERAs include chemical storage, boiler making or engineering, chemical manufacturing, processing or mixing, crude oil or petroleum product storing, power station, screening etc materials, abrasive blasting and waste disposal.</p> <p>NRG's other environmental license conditions relate to contaminants in water which includes spent process waters and stormwater run off, air contaminants in process waste gases and noise level emissions to prescribed standards. The licence also includes guidelines and conditions for the management of wastes, ash, ash leachates and chemical wastes which result from boiler cleaning.</p>  |
|                | What is the predominant approach used in NRG's licence? Risk based or prescriptive? | NRG's licence parameters, conditions and guidelines are based on a prescriptive approach.   |
|                | What technology and processes does NRG use to reduce their environmental impact?    | <p>NRG's original licence conditions ensured that the power station's environmental releases had a minimal impact on the environment.</p> <p>However it is NRG's policy to continually improve their technologies and methods by, for instance, benchmarking against industry best practice, and thereby further minimize environmental impacts. Examples of this are:</p> <ul style="list-style-type: none"> <li>▪ replacement of electrostatic precipitators with baghouse filters which reduced particulate emissions (dust) from 125 to 15 milligrams per cubic meter,</li> <li>▪ changes to processes in the fly ash dust disposal area which have increased the life of the disposal area by 30% or 10 years,</li> <li>▪ modifications of induced draft fans which will eliminate 100% of low frequency nuisance noise,</li> <li>▪ modification of coal conveying, dribble trays and chute systems that has reduced airborne coal dust,</li> <li>▪ upgrade the coal receiving dust suppression systems at wagon unloading point which will further reduce coal dust emissions</li> <li>▪ rehabilitation of Area 7 Ash Bund to mitigate erosion, improve drainage, attract bird life and improve the ecological and social value of the area</li> <li>▪ upgrade of in line nitrogen oxide and particulate monitoring equipment to</li> </ul> |

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|                      |   | <p>ensure emissions are less than 1.6 grams of nitrogen dioxide and 0.08 grams of particulates per cubic meter</p> <ul style="list-style-type: none"> <li>• coal combustion efficiency measures such as the installation of 3 high efficiency pulveriser motors that have improved efficiency of 90 kW motors by 3% and reduced overall carbon dioxide emissions by 544 tonnes / annum</li> <li>• installation of secondary treated sewerage water system that reuses 200ML / annum of sewerage effluent</li> <li>• installation of water savings systems that have reduced domestic potable water use by 25% or 185 ML / annum</li> <li>• introduction of solid and liquid waste recycling that reduces quantity dispatched to landfill by 800 tonnes / annum</li> </ul>  |
| <i>Air Emissions</i> | What is NRG licensed to emit to the air?                  | NRG is licensed to discharge contaminants to the atmosphere which include flue gas components such as oxides of nitrogen, particulates and sulphur dioxide, trace metals and other substances such as volatile organic compounds and polyaromatic hydrocarbons   |
|                      | What are the conditions for NRG's licensed air emissions? | The power station operates to the standards and prescribed targets as outlined in Part B Air Emissions of Schedule 2 to the GLADSTONE POWER STATION AGREEMENT ACT 1993 - SCHEDULE 1 and aims to achieve compliance in all aspects of the licence. This part of the Act is available at <a href="http://www.gilg.com.au">www.gilg.com.au</a> and the complete Schedule 2 is available at <a href="http://www.austlii.edu.au/au/legis/qld/consol_act/gpsaa1993351/sch1.html">http://www.austlii.edu.au/au/legis/qld/consol_act/gpsaa1993351/sch1.html</a>  |
|                      | What levels do you emit?                                  | <p>Flue gas emissions vary with the demand for electricity and the quantity of coal burned. The major components which are measured are nitrogen oxides which varies from between 1.01 gm per m<sup>3</sup> at 80 Mega Watt to 1.5 g per m<sup>3</sup> at 280 Mega Watt power generation. The sulphur dioxide in flue gases, which is not directly measured, vary between 300 ppm to 590 ppm. As the all the sulphur dioxide in flue gases come from the sulphur in the coal that is burnt, sulphur dioxide is controlled by managing the sulphur content of the coal being fed into the boiler. This is achieved by mixing coals with varying sulphur contents.</p> <p>Release of particulates is not dependent on coal burned and varies between 5 - 15 mg per m<sup>3</sup>. This particulate emission depends on the integrity of the fabric of the fabric filter bags which are designed to capture the ash particles.</p> <p>Trace metals and other substances which include volatile organic compounds and polyaromatic hydrocarbons are not directly measured as they are in such low concentrations that they are very difficult to measure by instrumental techniques.</p> |

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| <i>How do you know that you are operating within your licence conditions?</i> | What pollutants does NRG monitor for?  | NRG directly monitors particulates, oxides of nitrogen and fugitive dust and indirectly monitors sulphur dioxide by measuring the sulphur content of coal burnt.  |
|   | Where are NRG's monitoring sites - on site and off site?                                   | On site NRG monitors for oxides of nitrogen and particulates in flue gas. NRG has some 20 off site fugitive dust monitors between the station and the Clinton and Seaview Heights residential areas.  |
|   | How does NRG monitor? Real time or sample?   | Oxides of nitrogen and Particulates in the exhaust flue gas are measured in real time by Continuous Emission Monitors located in the duct. Fugitive dusts are measured using dust fallout gauges which are collected from the field.  |
|   | If sample, how often does NRG sample, who collects samples and where are samples analysed? | Fugitive dusts are collected monthly from fallout gauges in the field by a Consultant who also analyses the samples.<br><br>Periodically, usually every 12 months, NRG engages an independent consultant to conduct stack emission tests for over 80 other contaminants.  |
|   | Does NRG report monitoring results to the DERM and, if so, how?                            | NRG reports air quality information and National Pollutant Inventory (NPI) data to the DERM annually.   |
|   | Does NRG make the results public and, if so, how can people access them?                   | The sites total air emissions is reported annually in the National Pollutant Inventory (NPI). This data is available online at <a href="http://www.npi.gov.au/cqibin/npireport.pl?proc=facility_report;instance=public;year=2008;loc_type=postcode;loc_postcode=4680;jur_fac_id=5300">www.npi.gov.au/cqibin/npireport.pl?proc=facility_report;instance=public;year=2008;loc_type=postcode;loc_postcode=4680;jur_fac_id=5300</a>   |
| <i>Breaches</i>   | What happens if NRG exceeds their licence conditions?                                      | After Senior NRG Management are informed, NRG informs the DERM who then come to site to collate immediate details and view the incident scene. DERM then investigate the incident and may issue an infringement notice to NRG.  |
|   | What is the external and internal process used by NRG to report and rectify exceedances?   | The internal process requires immediate notification to Management. Samples are retaken if required and retested to verify the result. Photos are also taken if possible. The incident is also entered into an Incident recording system and an investigation commenced where all details are collated leading up to the cause of the incident. A report is written and forwarded to Management and the DERM which highlights findings and actions to prevent a reoccurrence. The DERM then acknowledge receipt of the report and will request further actions be undertaken if needed.<br><br>The external process requires NRG to notify the DERM immediately after the incident has occurred and been validated unless it is blatantly obvious by visual |

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|                           |   | <p>means. eg oil spill. A representative from the DERM will contact NRG for details and visit the Power Station to view the incident. A report will be written as mentioned above and forwarded to the DERM. DERM will view the report and impose a penalty on NRG to suit the seriousness of the environmental harm which has been caused.</p> <p>A case by case decision is made as to whether to release the results of these investigations.</p>   |
| <i>Internal Targets</i>   | Does NRG have internal standards or targets?  | Annual internal emissions targets are set as part of the NRG's continual improvement process. This includes setting real time monitoring triggers which ensure that immediate action is taken if emissions become unusually high.  |
|                           | Are NRG's standards or internal targets tougher than regulation and, if so, in what ways? | NRG's internal targets are set below those contained in the environmental licence. Not only does this ensure continuous improvement, it also gives NRG a safety barrier should an exceedance occur.  |
| <i>Emission Reduction</i> | What work practices or strategies does NRG use to reduce emissions. Is this risk-based?   | NRG aims to maintain the operational practices which best achieves reduced emissions. These practices or strategies have been determined from investigations and testing to meet the prescriptive requirements set in the legislation - Gladstone Power Station  |
|                           | What projects has NRG completed in the last five years to reduce air emissions?           | Extensive studies have been carried out to improve the efficiency, coal combustion and fabric filter capture of fly ash particulates. Major maintenance projects have included the insulation of steam pipes, heaters and boiler / turbine components to reduce thermal energy losses. Significant projects have been completed and are ongoing in the Coal plant to reduce fugitive dusts released during coal unloading and transfer through coal chutes and conveyor systems to the stockpile area. |
|                           | What budgeted projects has NRG planned to reduce air emissions?                           | Investigations are underway into the installation of low nitrogen oxide burners, fugitive dust real time monitoring and optimization of fabric filter use.   |