
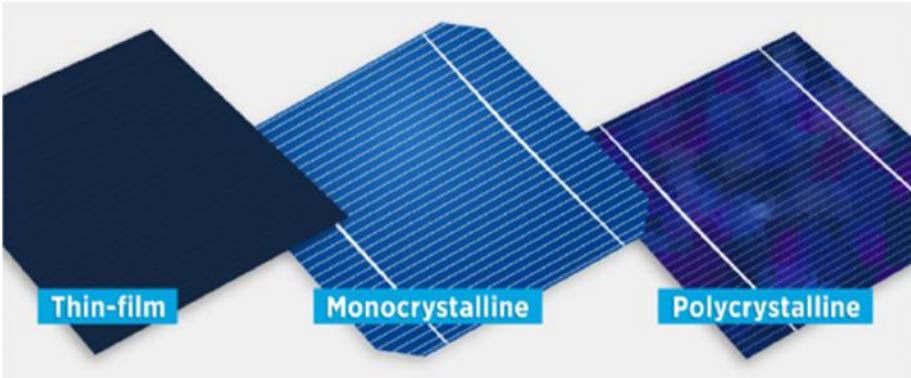


# APPENDIX C

Proposed Development of a Solar PV Facility and Associated  
Infrastructure at the Sishen Iron Ore Mine  
Facility Photographs



Activities	Images (for illustrative purposes only)	
<p>Total footprint<sup>1</sup> 340 ha (PV plant + solar PV substation)</p>	 <p>Google Earth</p>	
<p>Photovoltaic (PV) cells<sup>2</sup></p>	 <p>Thin-film      Monocrystalline      Polycrystalline</p>	

<sup>1</sup> Google Earth®



<sup>2</sup> <https://www.energy.gov/eere/solar/solar-photovoltaic-cell-basics>

Activities	Images (for illustrative purposes only)	
PV modules <sup>3</sup> A Monofacial B -Bifacial PV modules	A. Monofacial 	B. Bifacial 
Mounting structures Fixed tilt or tracking (single or double axis mounting structures)	Fixed tilt <sup>4</sup> 	Solar tracking <sup>5</sup> 

<sup>3</sup> [https://www.alibaba.com/product-detail/Jinko-solar-panel-tiger-mono-facial\\_1600066989060.html](https://www.alibaba.com/product-detail/Jinko-solar-panel-tiger-mono-facial_1600066989060.html)

<sup>4</sup> <https://www.indiamart.com/proddetail/solar-panel-mounting-frame-structure-20875006833.html>


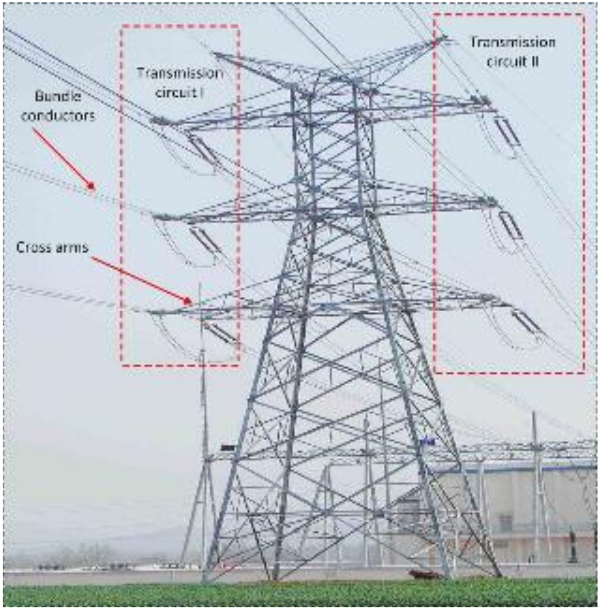
<sup>5</sup> <https://new.siemens.com/global/en/markets/machinebuilding/solar-production-machines/solar-tracking.html>

Activities	Images (for illustrative purposes only)	
<p>Inverters<sup>6</sup></p> <p>Centralised or string inverter stations</p>	<p>String Inverter</p> 	<p>Containerized</p> 
<p>Cabling<sup>7</sup></p> <p>Underground direct (DC) and alternating current cables</p>		

<sup>6</sup> <https://www.electricaleasy.com/2017/04/laying-of-underground-cables.html>

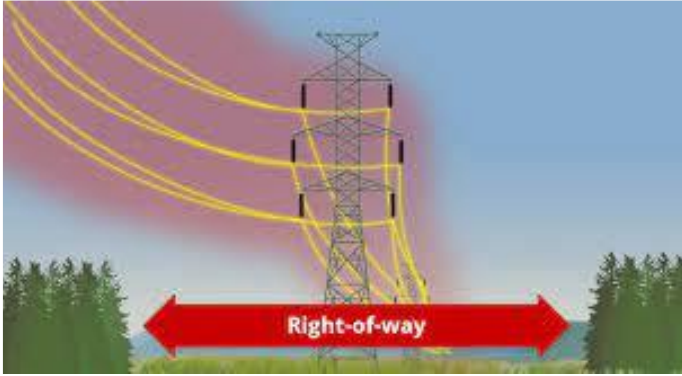

<sup>7</sup> <https://www.electricaleasy.com/2017/04/laying-of-underground-cables.html>



Activities	Images (for illustrative purposes only)
<p>Onsite substation with inverter and at least one small building, outdoor electrical plant, equipment, and transformers</p>	 <p>8</p>
<p>Transmission Line (either overhead or underground)</p>	 <p>9</p>

<sup>8</sup> <https://ratedpower.com/blog/substation-engineering/>

<sup>9</sup> [https://www.researchgate.net/figure/A-typical-transmission-line-tower-Source-Adapted-from-the-work-in-40\\_fig2\\_344324550/download](https://www.researchgate.net/figure/A-typical-transmission-line-tower-Source-Adapted-from-the-work-in-40_fig2_344324550/download)

Activities	Images (for illustrative purposes only)
Corridor (servitude) Width and Length <sup>10</sup>	
Pit 2 Substation <sup>11</sup>	

<sup>10</sup> <https://www.hydroquebec.com/safety/servitudes-property-rights/transmission-lines-substations.html>

<sup>11</sup> 1001618-0000-REP-JJ-00003-2, Zutari 2022

Activities	Images (for illustrative purposes only)
<p>Sishen main substation<sup>12</sup></p>	
<p>Battery Energy Storage System (BESS)<sup>13</sup> Redox Flow or Lithium-Ion Batteries</p>	

<sup>12</sup> 1001618-0000-REP-JJ-00003-2, Zutari 2022

<sup>13</sup> <https://www.eqmagpro.com/battery-energy-storage-system-market-is-determined-to-reach-us-9-billion-by-2024/>

Activities	Images (for illustrative purposes only)
Laydown Area <sup>14</sup>	 A 3D perspective rendering of a construction site's laydown area. The ground is a light grey concrete or asphalt. In the center, there are several stacks of materials: blue and green rectangular blocks, wooden planks, and various containers. A blue and white striped fence runs along the left side. A yellow and black traffic cone is on the right. The words 'LAYDOWN AREA' are printed in large black letters on the ground. A blue callout box with a white pointer and the text 'Laydown Area' is positioned above the central stacks.
Security <sup>15</sup> Fences	 A photograph showing a security fence in an industrial or construction environment. The fence is made of metal posts and wire mesh. Behind the fence, there are tall metal structures, possibly part of a power plant or refinery, under a clear sky. The ground is dirt and gravel.

<sup>14</sup> <https://pinnacleinfotech.com/services/construction-site-logistics/>

<sup>15</sup> <http://www.nilesfence.com/security.php>



Activities	Images (for illustrative purposes only)
Water Storage Tank / Conservancy Tank	 <p>16</p>
Water Treatment Plant	 <p>17</p>

<sup>16</sup> <https://all.biz/tank-metal-structures-vst-2000-m3-5000-m3-g9342439RU>

<sup>17</sup> <https://watercareinnovations.com/blog/replacing-municipal-drinking-water-with-treated-waste-mine-water/>

Activities	Images (for illustrative purposes only)	
Power Supply Generators <sup>18</sup>		
Water Supply	<p>Water bowser<sup>19</sup></p> 	<p>PV Cell Cleaning<sup>20</sup></p> 

<sup>18</sup>[https://topdogtoolshop.co.za/product/turner-morris-100-kva-cummins-generator-silent/?gclid=EAlaIqobChMlPdbCga\\_L-QIVDAGLCh2qxwKVEAQYASABEgKgj\\_D\\_BwE](https://topdogtoolshop.co.za/product/turner-morris-100-kva-cummins-generator-silent/?gclid=EAlaIqobChMlPdbCga_L-QIVDAGLCh2qxwKVEAQYASABEgKgj_D_BwE)

<sup>19</sup><https://allpumps.com.au/filling-water-trucks-mines-diesel-driven-transfer-pumpset/>

<sup>20</sup>[https://www.youtube.com/watch?v=heBGvjaw2l0&ab\\_channel=SolarParkCleaningUK](https://www.youtube.com/watch?v=heBGvjaw2l0&ab_channel=SolarParkCleaningUK)

Activities	Images (for illustrative purposes only)	
Wastewater - Sewerage	<p data-bbox="646 285 898 318">Portable chemical toilet<sup>21</sup></p> 	<p data-bbox="1178 285 1388 318">Honey sucker truck<sup>22</sup></p> 
Waste <sup>23</sup>	 	

<sup>21</sup> <https://buildequip.co.za/product/chemical-toilet/>

<sup>22</sup> <https://aztek.co.za/honeysucker/>

<sup>23</sup> SLR Consulting, 2020

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