

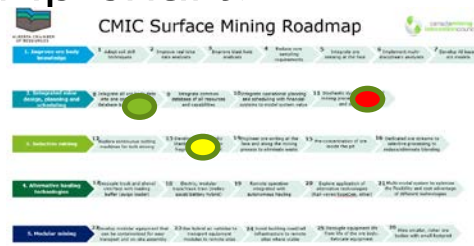
# Group Discussion and Exercise ....

## Small Group Exercise and the Dotmocracy Process – Gord Winkel

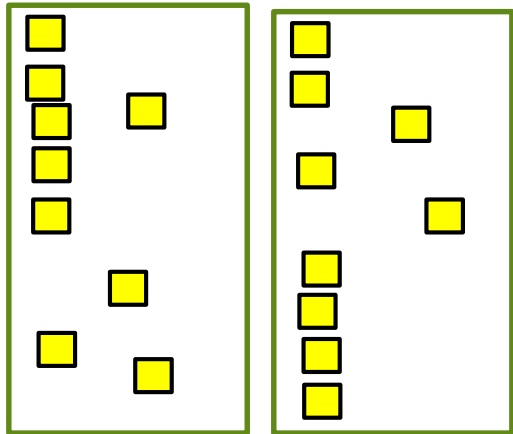
- At your tables, refer to the CMIC Surface Mining Roadmap.
- Discuss focus areas on the Roadmap, and choose your individual top 5 priority's. Use 5 dots and record the number of the priority from the Roadmap.
- If, you or your group wants to add some focus areas, record these on the 3" by 5" notes.
- Guidance for moving forward, based on today's information. Record on flip charts.

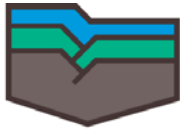
## Break

- A- Place your numbered dot on the large roadmap.
- B –and place the 3" by 5" sticky notes on a flip chart.



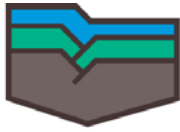
## Group Discussion / Panel Guidance for moving forward.





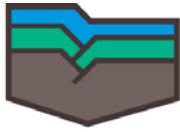
# CMIC Surface Mining Roadmap





# CMIC Surface Mining Roadmap





# CMIC Surface Mining Roadmap



## 6. Integrated operations with intelligent work environment

- 27 Establish digital twins of all equipment as well as full mine and operations
- 28 Improve predictive analytics of equipment and mining process performance
- 29 Integrate wearables to create the performance augmented worker
- 30 Fully digitalized operations with integrated performance feedback loop

## 7. Automation

- 31 Automate back-office processes
- 32 Link intelligent work place to integrated planning, scheduling and dynamic simulation
- 33 Remote centers to operate remote equipment
- 34 Full autonomous parts of the operations
- 35 Automate the integration and management of renewable energy integration

## 8. Electrification & renewable resources

- 36 Electrification of all mining processes
- 37 Digitally intelligent grid to enable full load control and orchestration at mine level
- 38 Maximum penetration of renewable energy
- 39 Use cheap renewable energy to clean and recycle water
- 40 Zero emissions fully electrified mining operation

## 9. Transact more efficiently

- 41 Use Block-chain (BC) to track ore mined throughout the value chain
- 42 Reward employees and partners with instant payments
- 43 Track warranties on parts with BC individually
- 44 Sell metals and minerals directly to end customer with BC (Track, recycle and resell)
- 45 Fully transparent mining – operations, supply chain and all external stakeholders

## 10. Improve Water Treatment & Management

- 46 Implement digital water monitoring and automated management
- 47 Establish Block-chain logging of water quality
- 48 Introduce advanced purification and recycling technology to reduce/eliminate tailing
- 49 Extract valuable minerals from waste streams
- 50 Zero water environmental impact mining

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