



Norske Skog Albury Mill

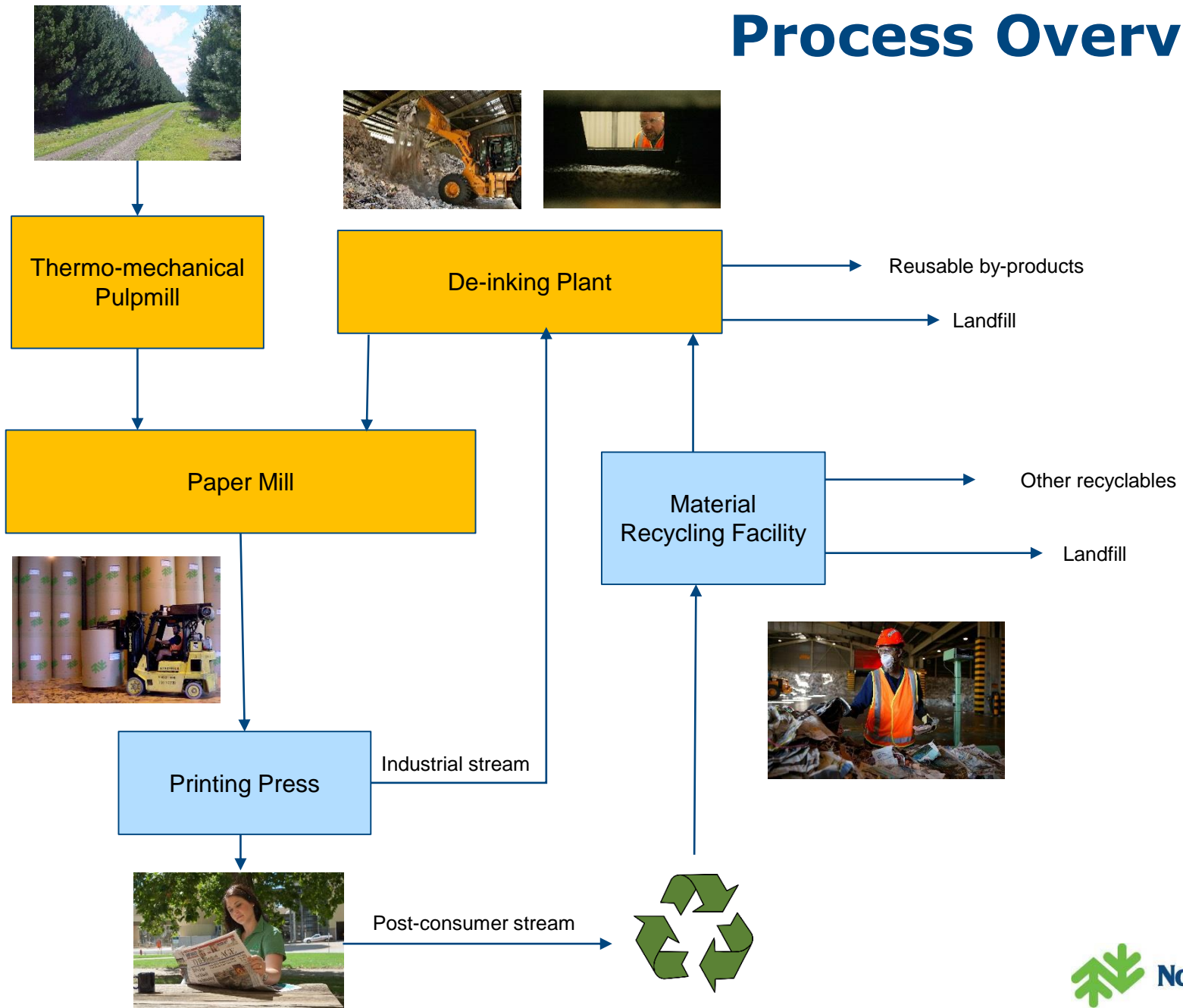
June 2018

Operations

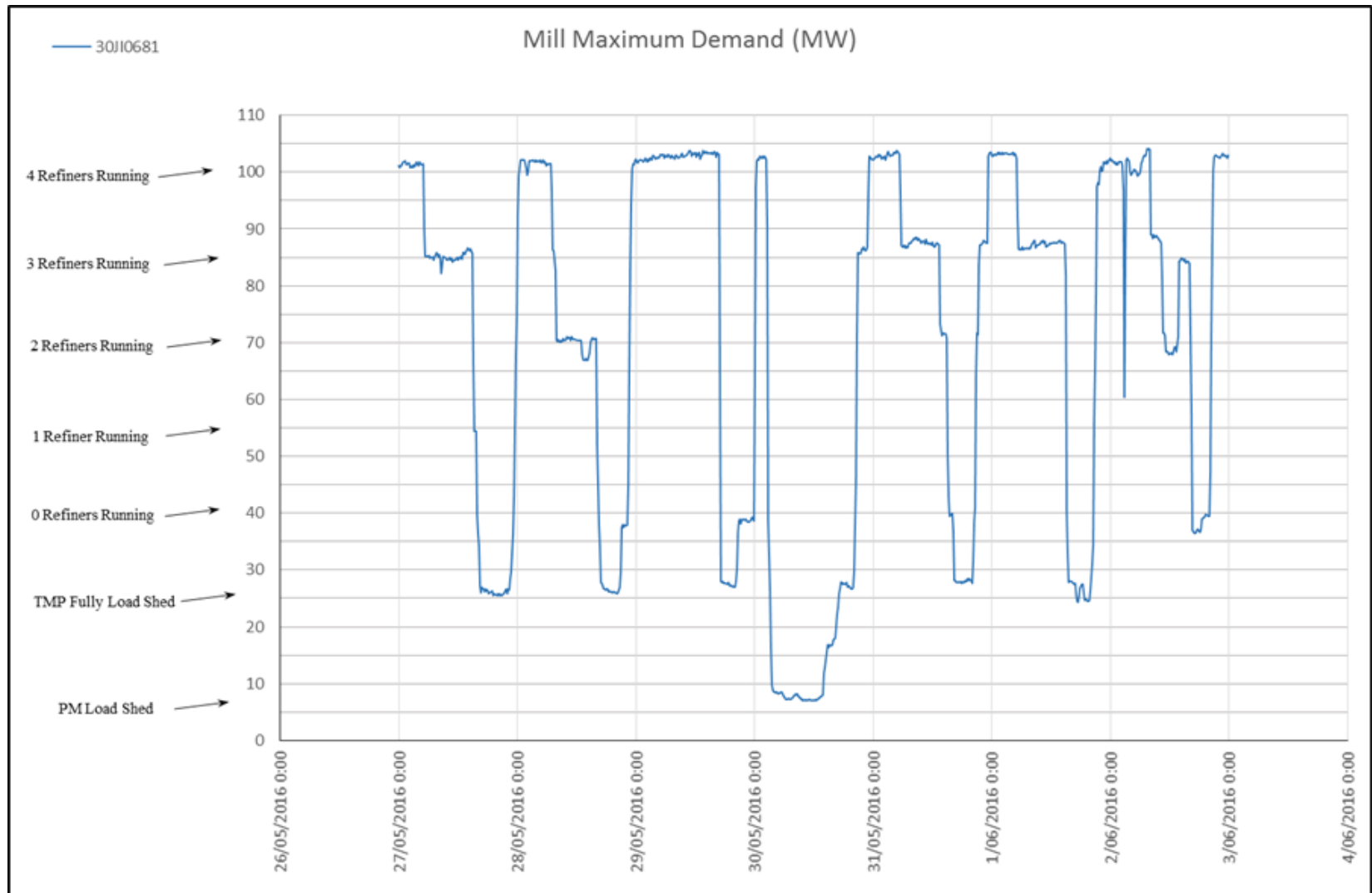
- The total mill operates 24 hrs per day x 7 days per week
- Power requirements are typically 620,000 MWh per annum
- The mill is directly connected to the transmission network
- A 4 person typical modern household in Albury with electricity and natural gas connected consumes 6.56 MWh pa of electricity¹
- The mill operates on a base load and variable load basis
 - Incentivised to do this due to the power tariff arrangement the mill operates under, and
 - The design of the mill
 - Bound by contract confidentiality provisions
- The mill also provide FCAS network support services via an aggregator due to the variable component of the mill operation

1. [https://www.energymadeeasy.gov.au/benchmark for postcode 2640](https://www.energymadeeasy.gov.au/benchmark-for-postcode-2640)

Process Overview



Electricity Load Profile



Future Electricity Considerations

- Base load power requirement
 - How much can be made into variable load?
- Variable load requirement
 - Doesn't mean intermittent load, operates on a regular basis
 - How much can be converted into base load?
 - Are there low energy production processes available?
- Network stability
 - The paper machine has speed control system sensitive to voltage dips and harmonics
 - The speed control system is an AC drive system so NEM inertia is important to us
- Transmission networks
 - Behind the meter
 - Local generation opportunities
 - Off the grid

Future Cost of Electricity Considerations

- Total cost of electricity is currently 32% of operating costs
 - Energy, transmission, regulatory and renewable schemes
- What are the low cost options?
 - NEM price is currently too costly and is forecast to remain high
 - Five years is too late for the mill
- What will be the new pricing models?
 - How will power deals be structured?
 - How will transmission (and distribution) companies recover their previous and future investments?
 - What will be the cost of 5 minute trading in 2021?
- What might a new production model look like for the mill?
 - Production linked to power pricing?
 - Linked to many remotely located physical energy deals?
 - Other?