

# A Day in the Life of a Gas Operations Engineer

*Looking back on 22 August 2020*

Presented by William Baskerville and Li Ming Ang

# Important Notice

## Purpose

AEMO has prepared this presentation material to provide information about the operation of the Victorian gas transmission system and the market operational strategies for Winter 2021, as at the date of publication.

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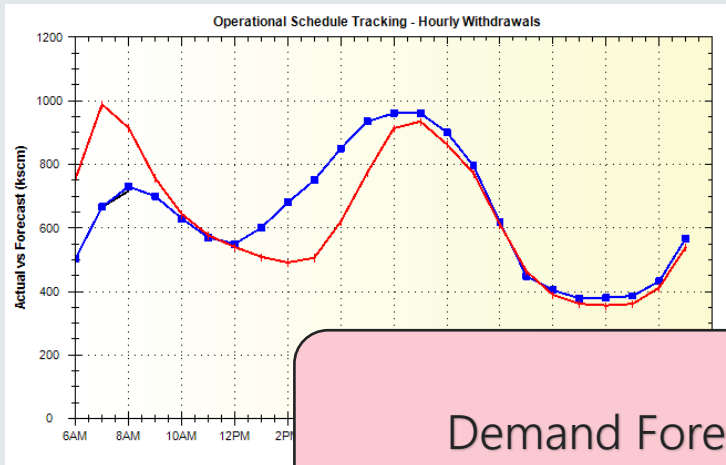
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# Objectives



Gas Operations Engineers  
and Winter



Demand Forecast

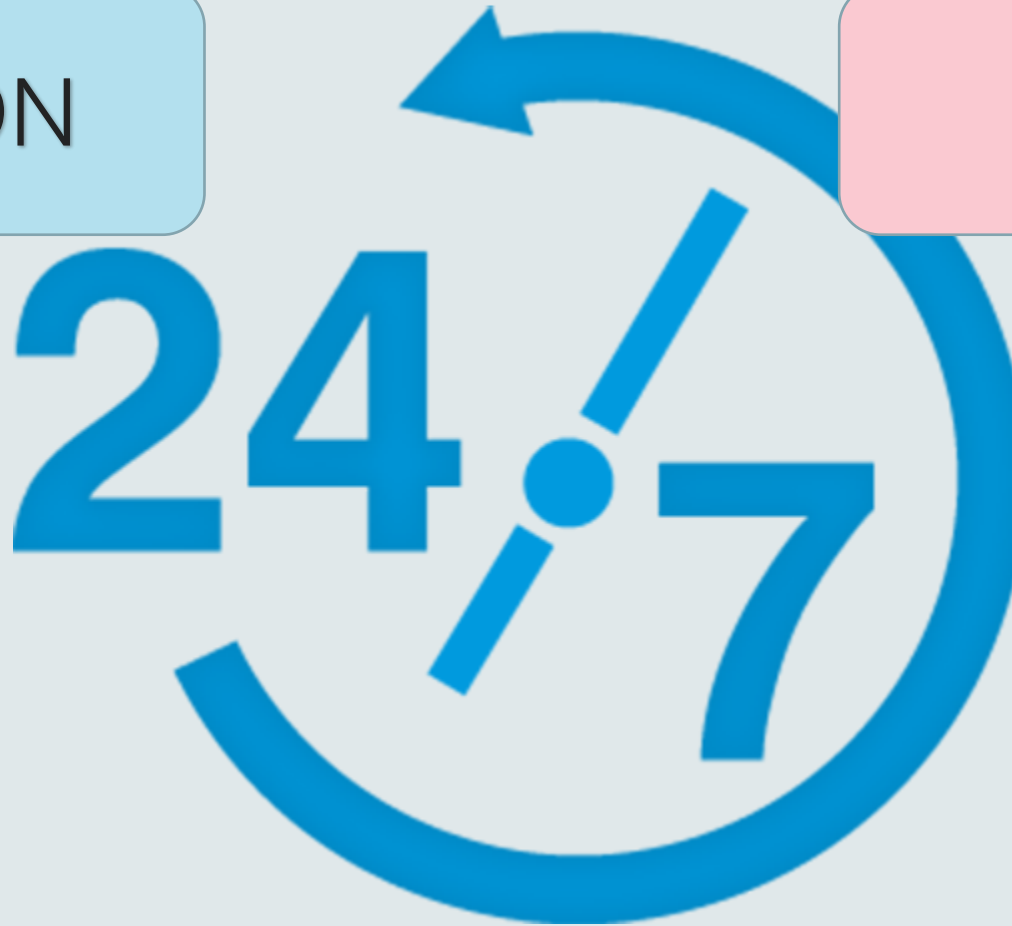


Profiling and Operational  
LNG

# The AEMO Gas Control Room

TRANSMISSION

SCHEDULING



# Gas Operations Engineer roles

TRANSMISSION

DTS Operations

Linepack management

Demand forecasts

Gas quality



SCHEDULING

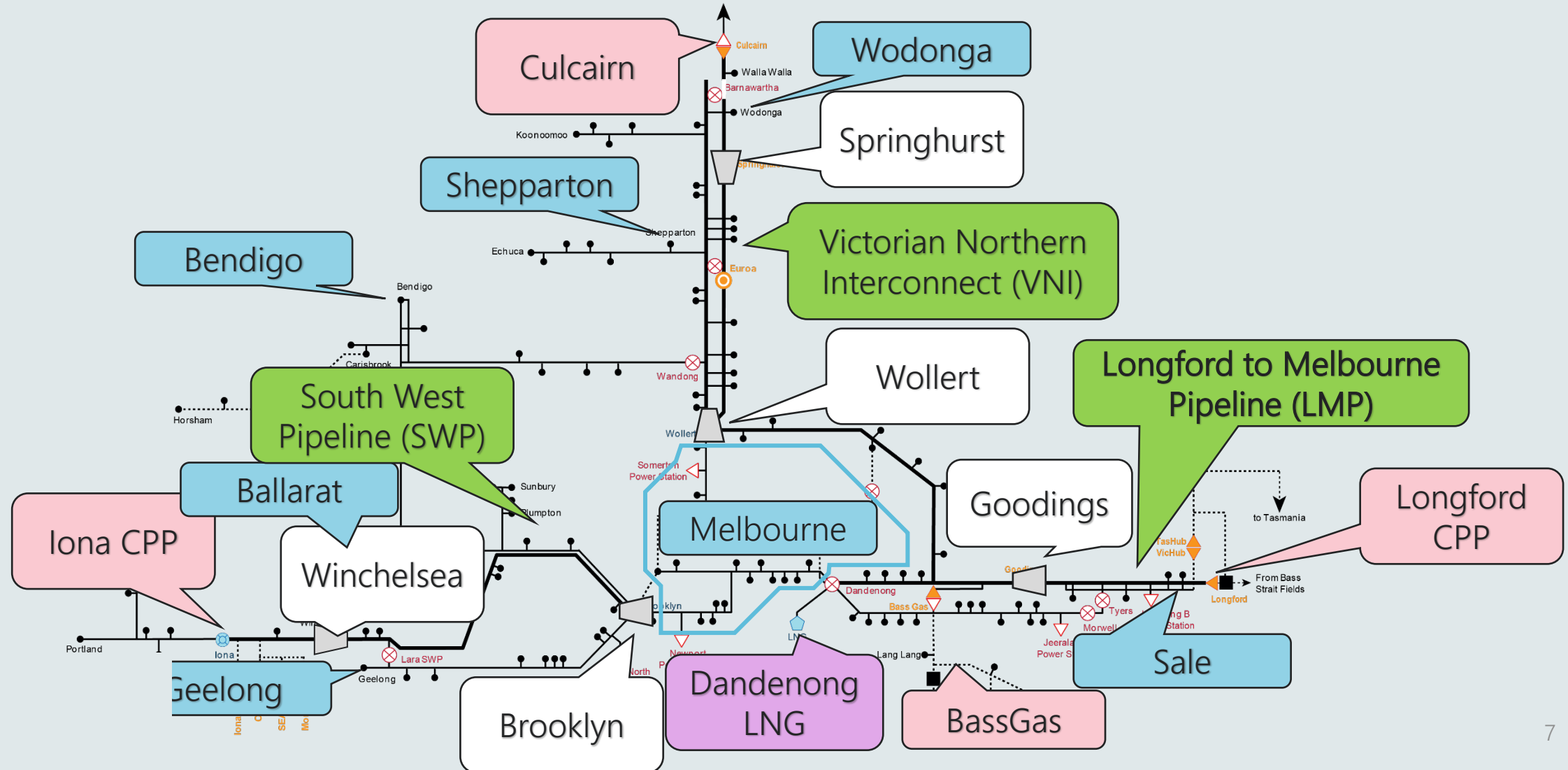
Producing schedules

Processing constraints

Monitoring bids

22 August 2020  
6:00 AM handover

# A brief overview of the DTS

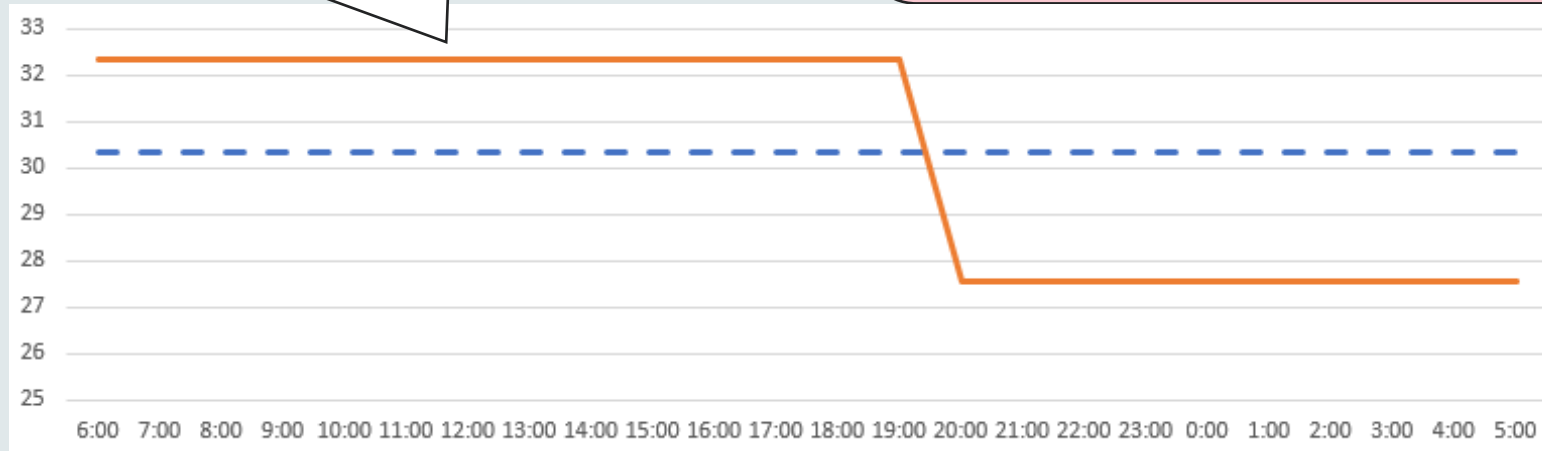


# 6:00 AM handover – *setting the scene*

EDD 14.1  
Max 11°C

Longford SDPC: +2 TJ/hr for  
14 hours from 6:00 AM

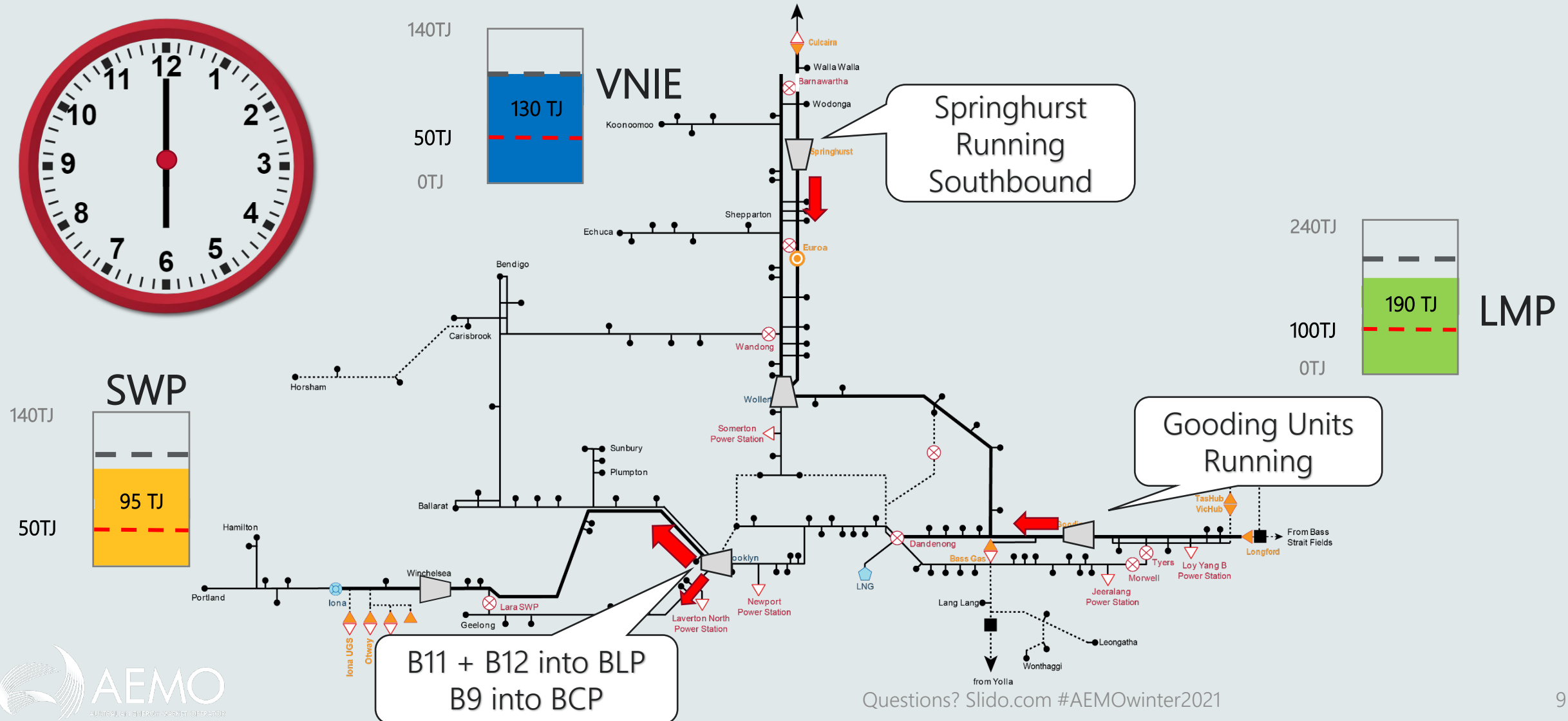
**MP Forecast + AEMO  
Override  
= 1065 TJ**



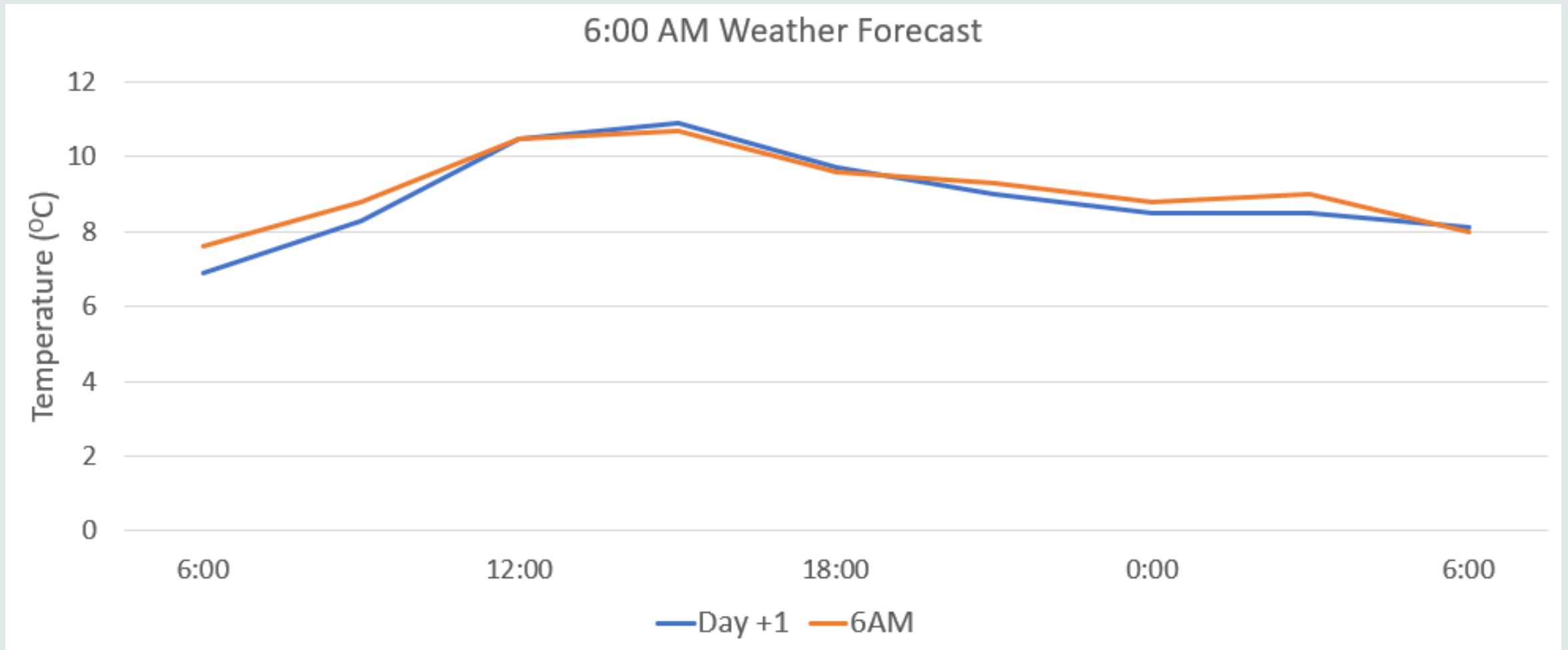
AEMO has scheduled profiled injections at Longford INJ meter on gas day 22/08/2020 to support total demand



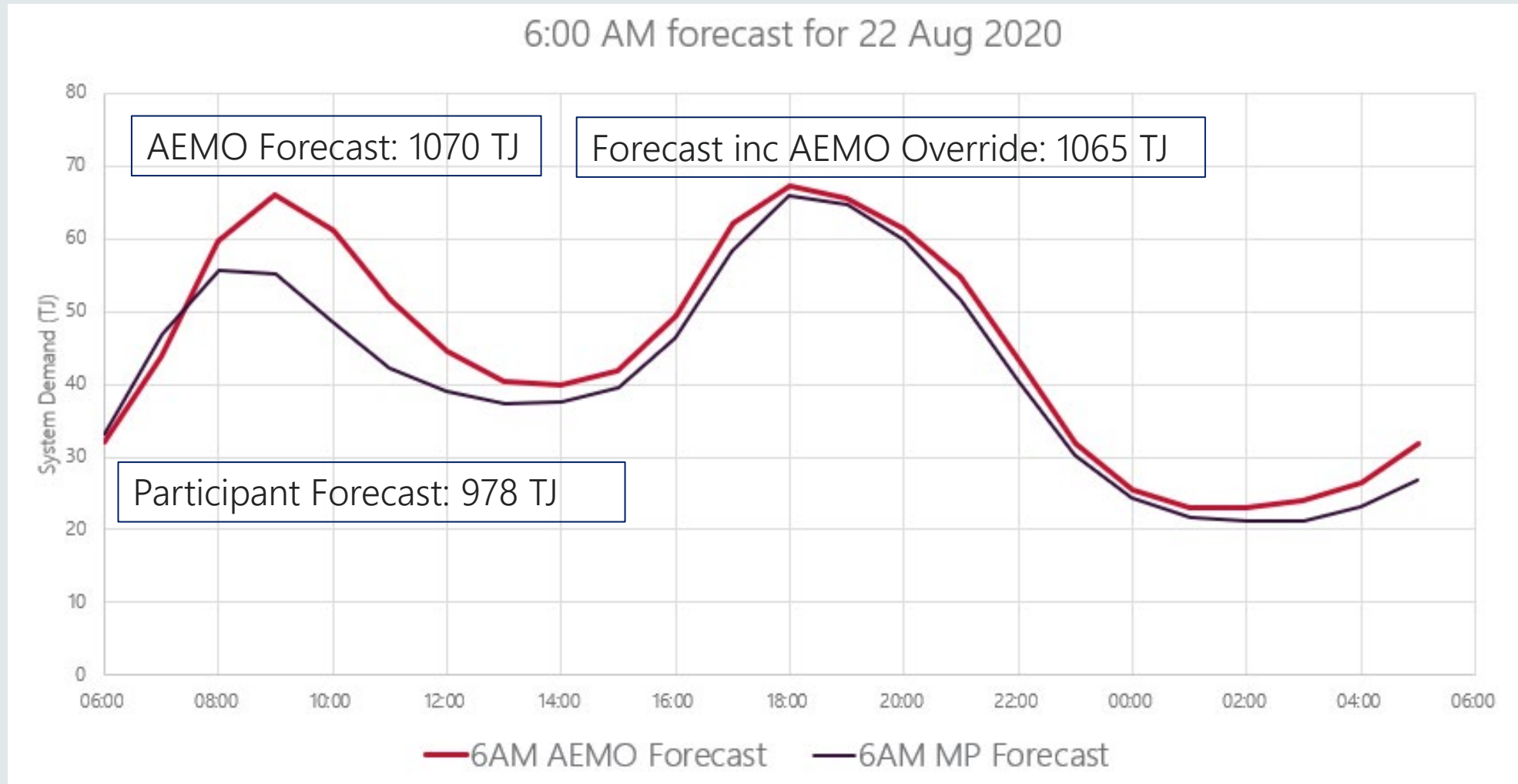
# 6:00 AM handover – system status at 6:00 AM



# 6:00 AM handover – weather forecast



# 6:00 AM handover – demand forecast

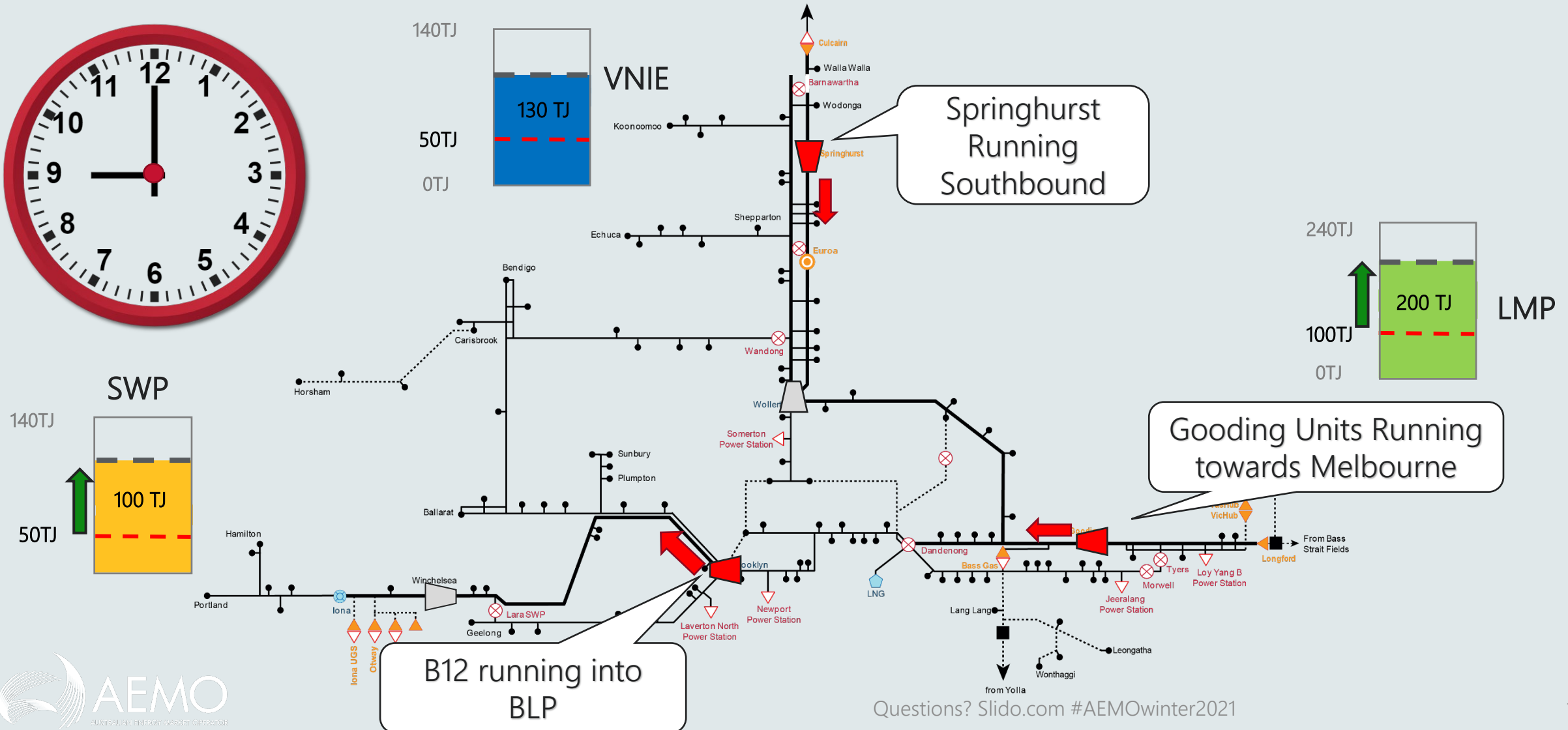


## An analog clock with a red frame and a white face. The hour and minute hands are both pointing at the 12, indicating the time is 12:00. The clock has black numbers from 1 to 12 and small tick marks for minutes.

6.5 TJ/h

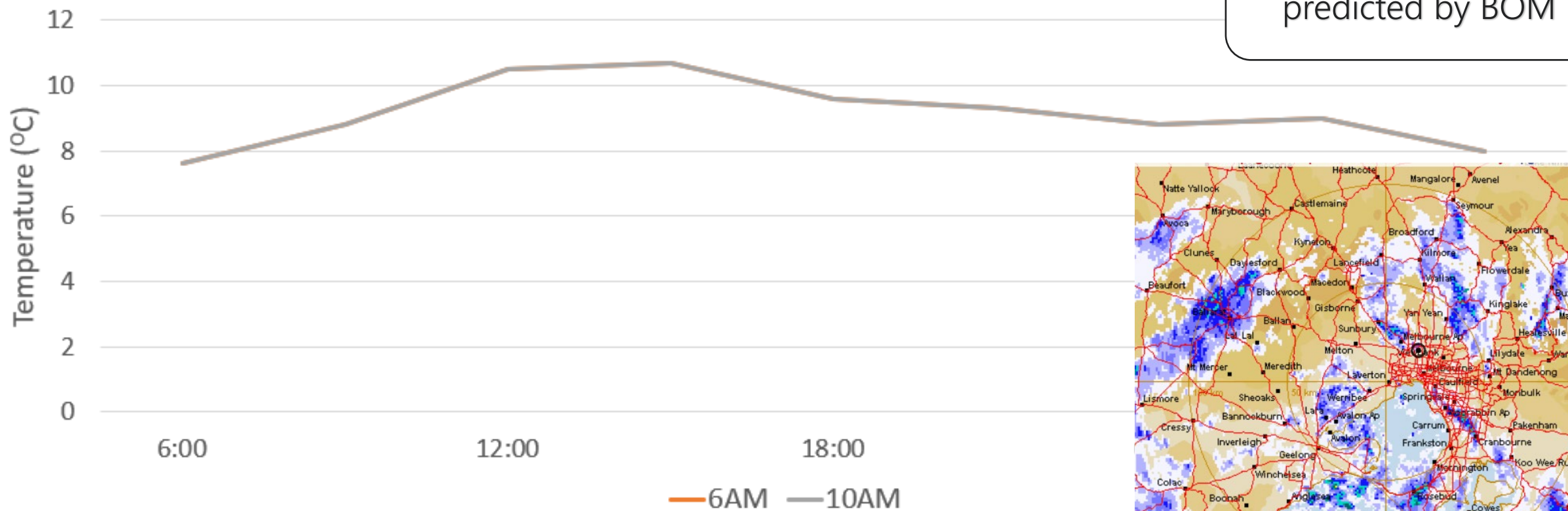
22 August 2020  
10:00 AM horizon

# 10:00 AM horizon – system status at 9:00 AM

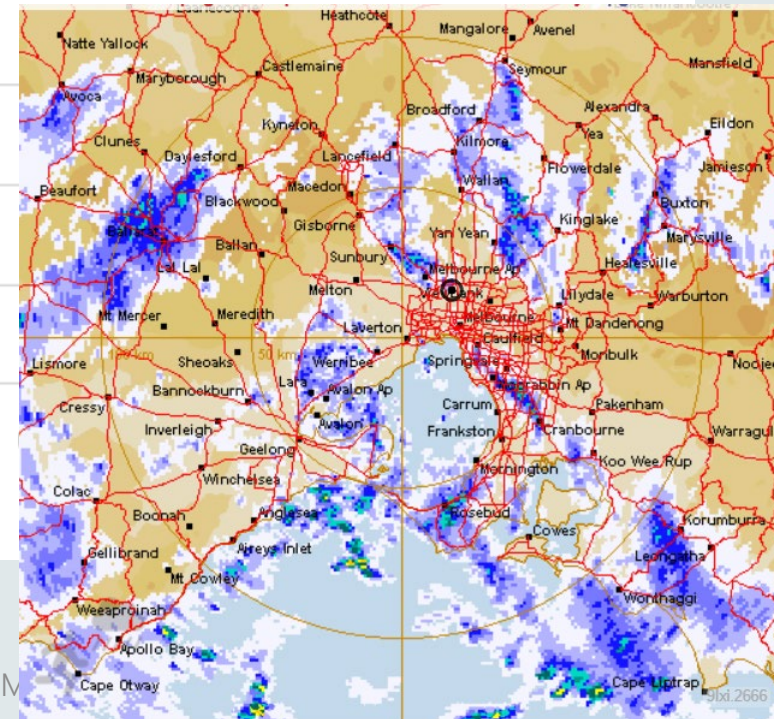


# 10:00 AM horizon – weather forecast

10:00 AM Weather Forecast



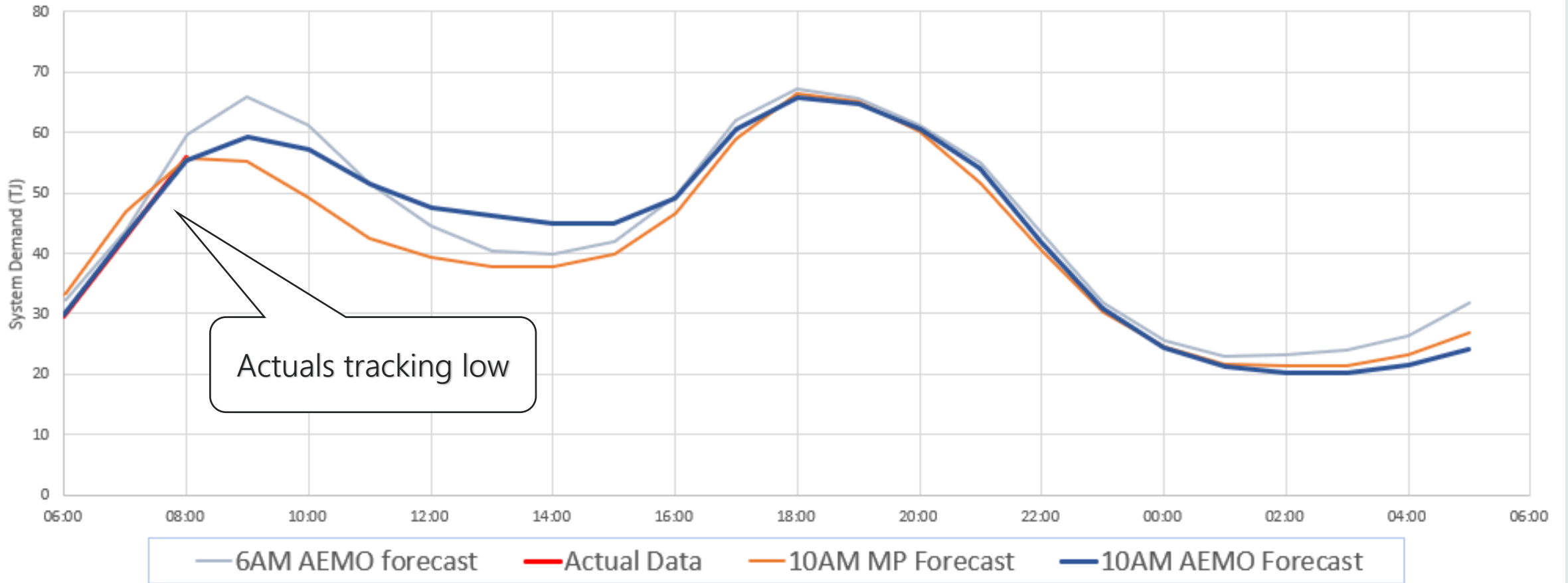
4 hours of sunshine  
predicted by BOM





# 10:00 AM horizon – demand forecast

10:00 AM forecast for 22 Aug 2020





# 10:00 AM horizon – schedule outcome



+1 ↑ **Culcairn: 95 TJ**

3.9 TJ/h

No significant operational changes made for this horizon

Longford: 728 TJ  
VicHub: 28 TJ  
TasHub: 26 TJ  
BassGas: 32 TJ

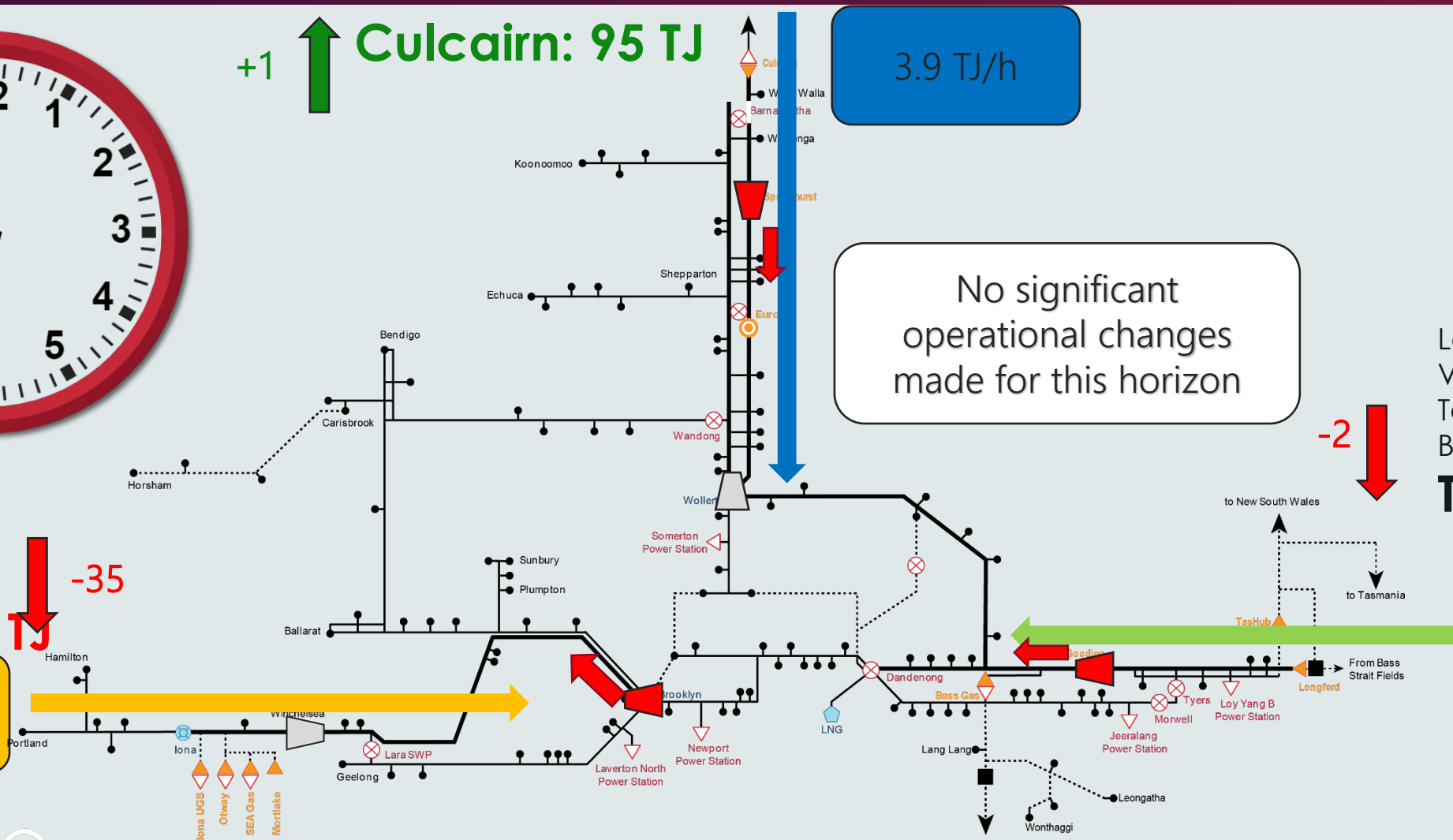
**Total: 814 TJ**

35.5 TJ/h

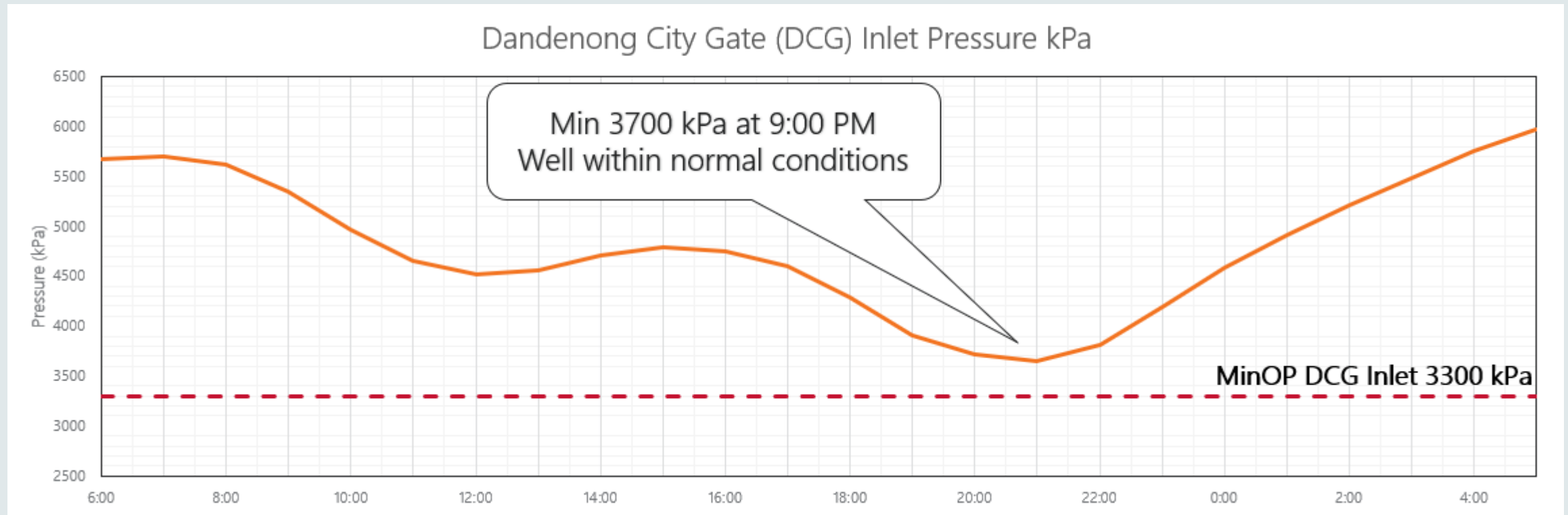
Iona: 125 TJ  
SEAGas: 9 TJ  
Mortlake: 0 TJ  
Otway: 0 TJ

**Total: 134 TJ**

5.4 TJ/h

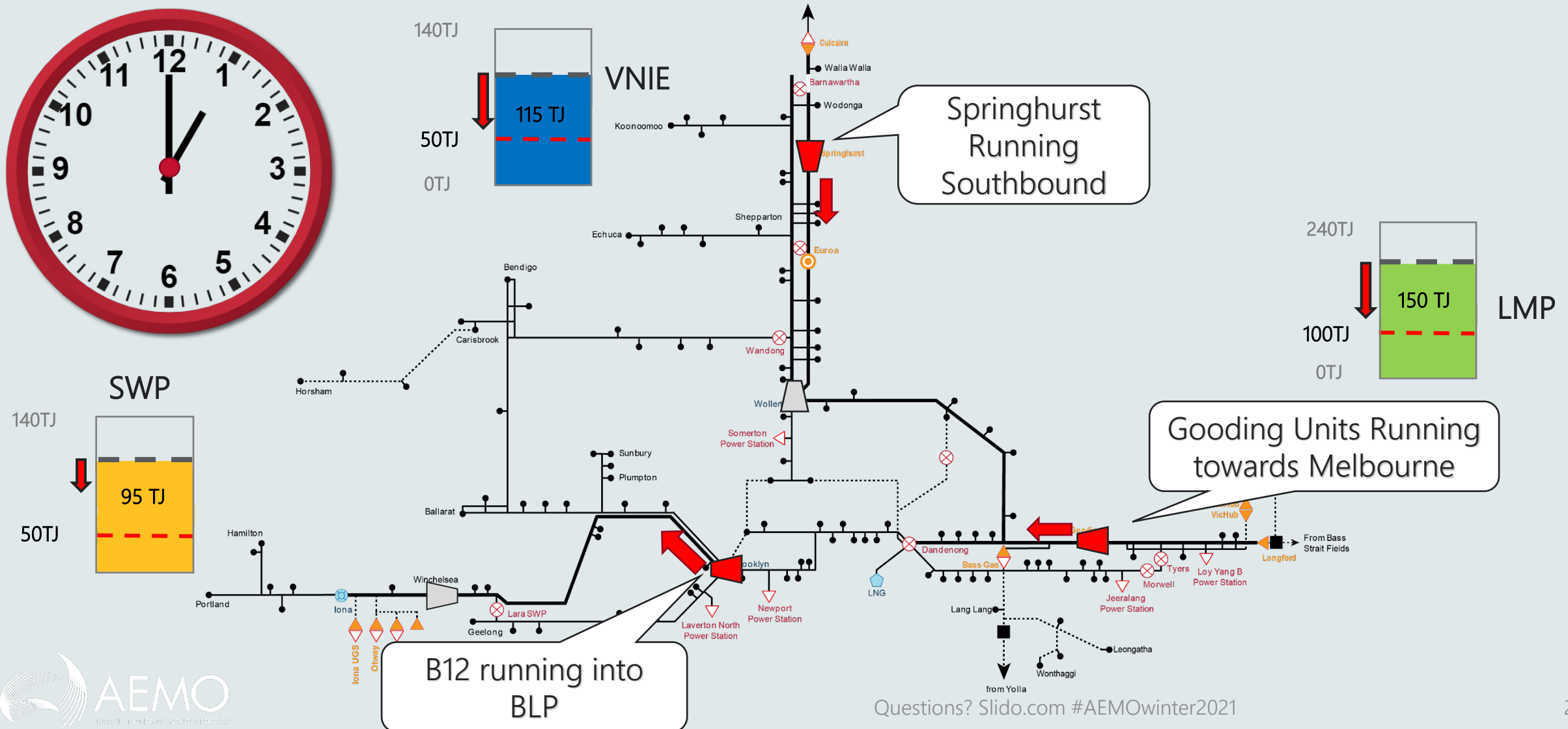


# 10:00 AM – *system model ran at 9:45 AM*

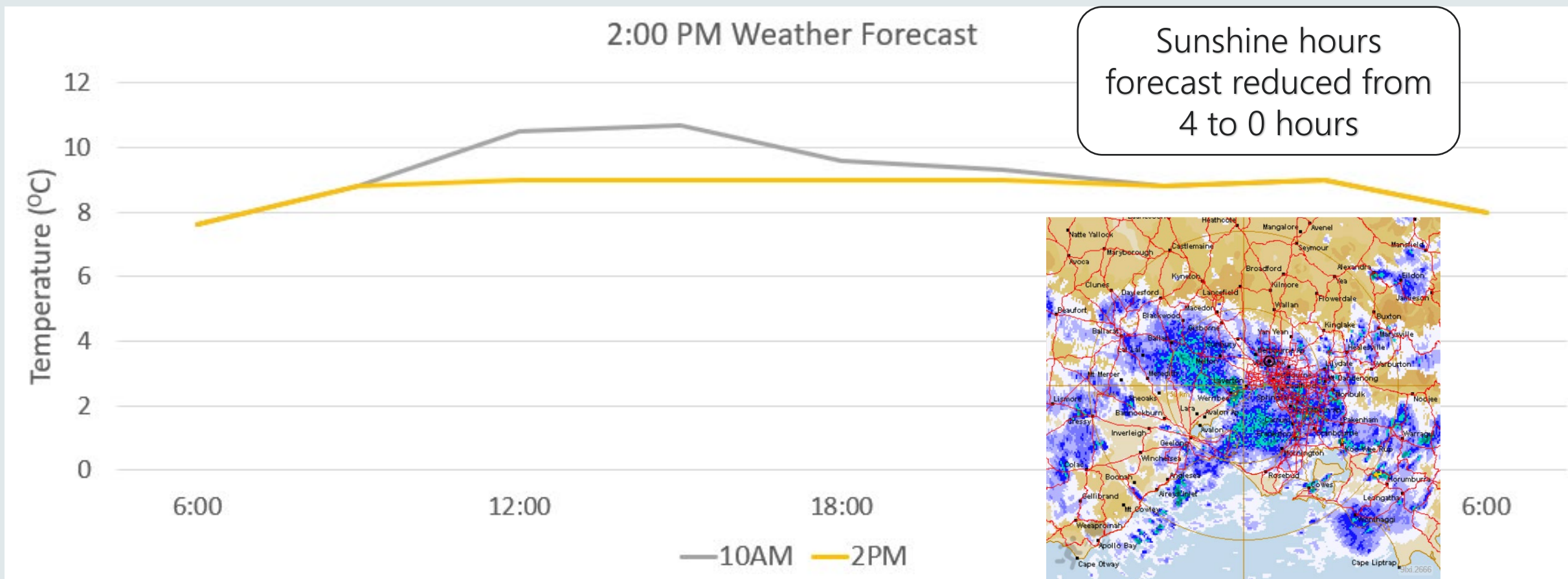


22 August 2020  
2:00 PM horizon

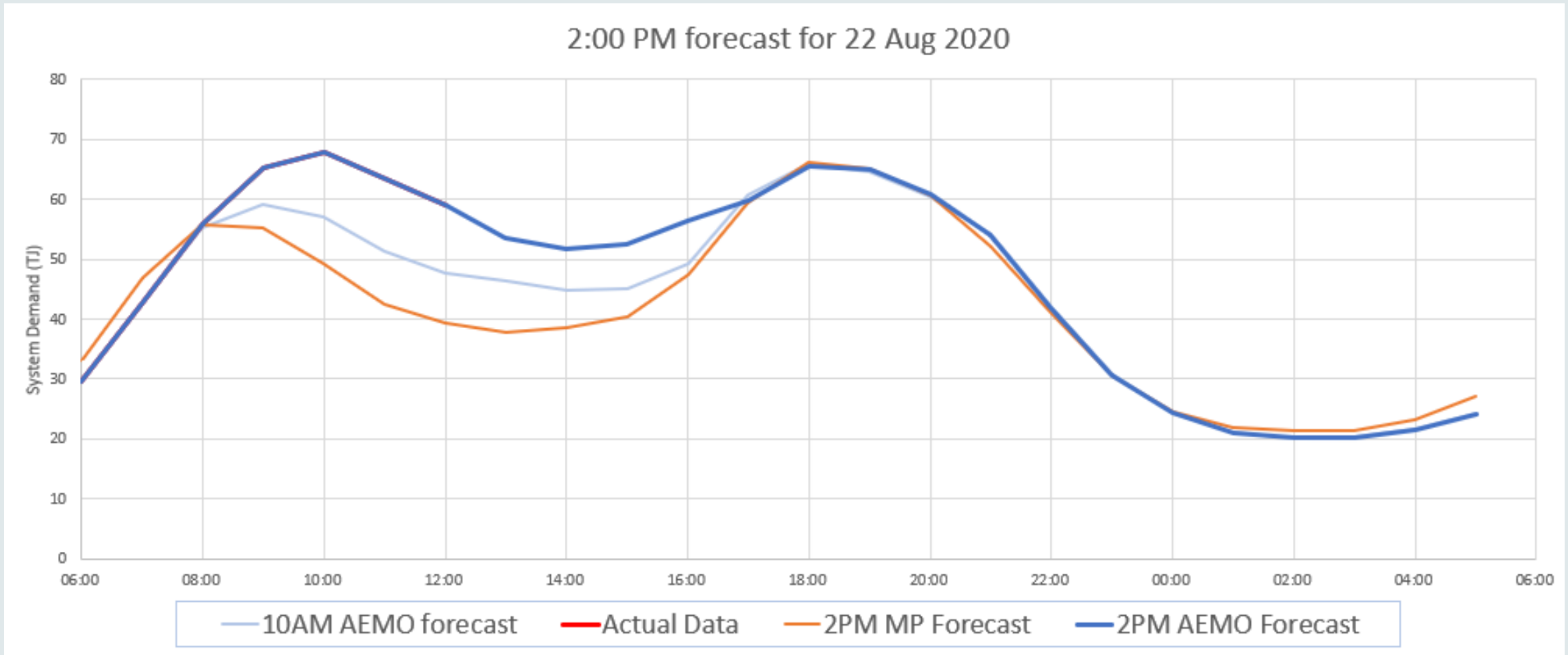
# 2:00 PM horizon – system status at 1:00 PM



# 10:00 AM horizon – weather forecast



# 2:00 PM – demand forecast



# 2:00 PM horizon – schedule outcome



+25 ↑ Culcairn: 120 TJ

5.5 TJ/h

Iona: 138 TJ  
SEAGas: 9 TJ  
Mortlake: 0 TJ  
Otway: 0 TJ  
+13 ↑  
**Total: 147 TJ**

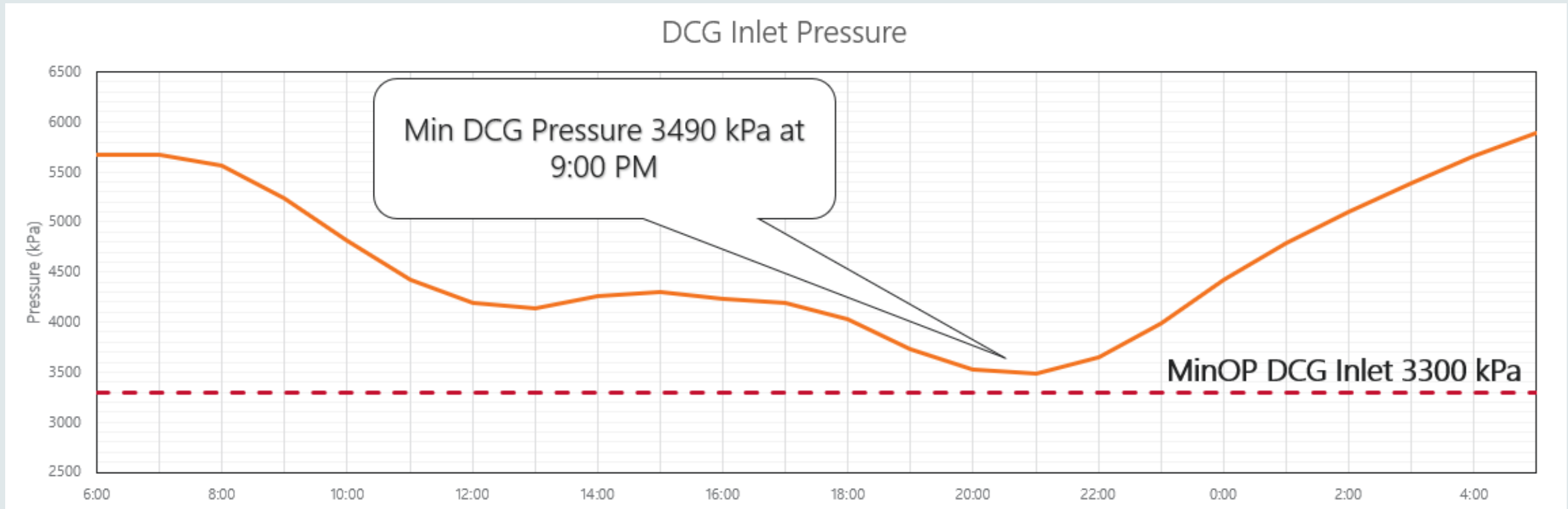
6.2 TJ/h

B12 stopped at 1:30 PM

+47 ↑  
Longford: 754 TJ  
VicHub: 47 TJ  
TasHub: 26 TJ  
BassGas: 32 TJ  
**Total: 859 TJ**

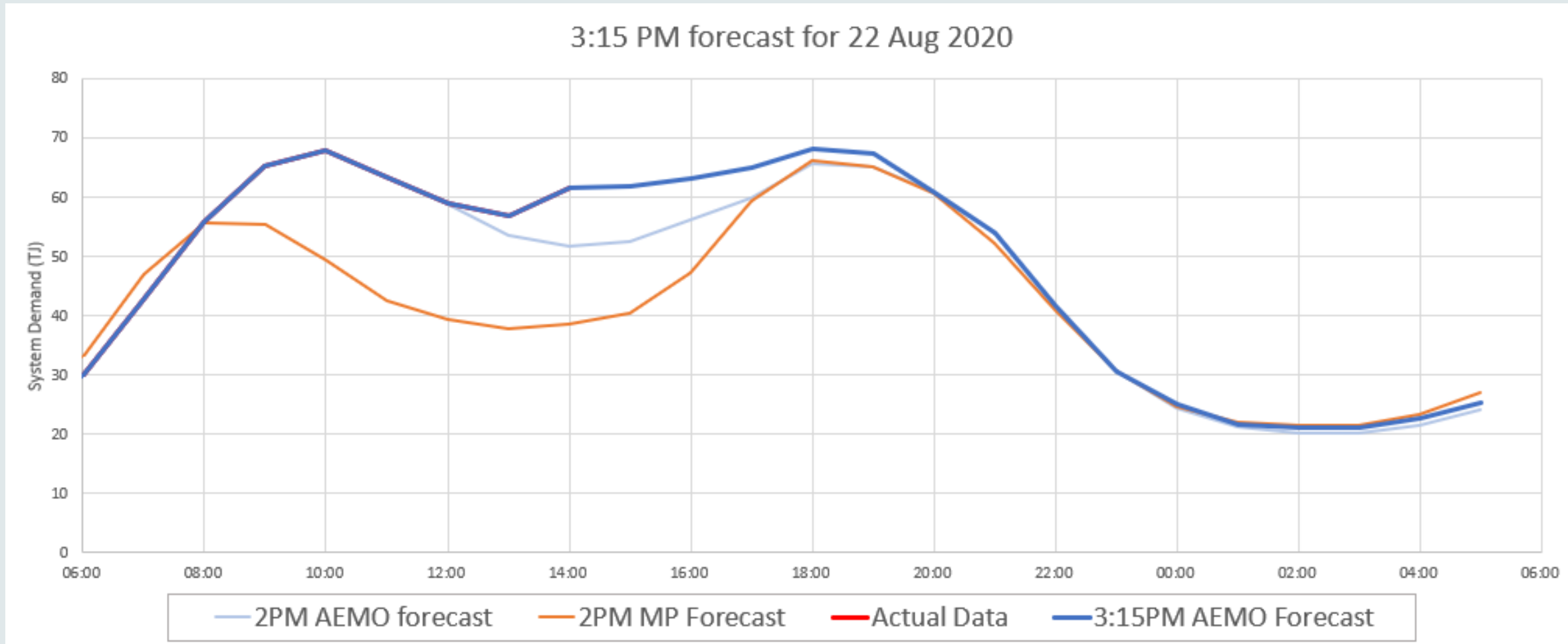
36 TJ/h

# 2:00 PM horizon – *system model ran at 1:00 PM*





# 3:00 PM – *updated tracking at 3:15 PM*



# 3:30 PM – system models ran at 3:30 PM

## Injection Data

Day 0	2020-08-22				TJ	KSCM		
Hour	ESSO	VicHub	TasHub	BassGas	Culcairn	Iona	SEAGas	
06:00	32.3	1.2	1.1	1.3	3.9	5.5	0.6	
07:00	32.3	1.2	1.1	1.3	3.9	5.9	0.6	
08:00	32.3	1.2	1.1	1.3	3.9	6.3	0.6	
09:00	32.3	1.2	1.1	1.3	3.9	6.5	0.6	
10:00	32.3	1.2	1.1	1.3	3.9	6.5	0.6	
11:00	32.3	1.2	1.1	1.3	3.9	6.5	0.6	
12:00	32.3	1.2	1.1	1.3	3.9	6.5	0.6	
13:00	32.3	1.2	1.1	1.3	3.9	6.5	0.6	
14:00	32.3	1.4	1.2	1.3	5.5	6	0.6	
15:00	32.3	1.4	1.2	1.3	5.5	6.1	0.6	

## Regulator Settings

18

Day 0

2020-08-22

19

20

21

		Initial SPs	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00
<div><div></div><div>BLP</div></div>	Forward	4400								
<div><div></div><div>BCP</div></div>	Forward	2200								
<div><div></div><div>BBP</div></div>	Forward	7000	6000							
	Back	4400								
<div><div></div><div>Lara</div></div>	Forward	3000								
<div><div></div><div>Iona</div></div>	Forward	6500								
<div><div></div><div>Wollert CG</div></div>	Forward	2760								
<div><div></div><div>Wollert T119</div></div>	Forward	6800								
<div><div></div><div>Wollert T74</div></div>	Forward	5000								4500
<div><div></div><div>Wandong</div></div>	Forward	7300								
<div><div></div><div>Euroa T119</div></div>	Forward	7200								
<div><div></div><div>Euroa T074</div></div>	Forward	7200								
<div><div></div><div>Barnawartha</div></div>	Forward	4500	4000							
<div><div></div><div>DCG CG</div></div>	Forward	2760								
<div><div></div><div>Morwell Backup</div></div>	Forward	2400								
<div><div></div><div>Other Regulators</div></div>	Plumpton Forward	7200								
<div><div></div><div>Valves</div></div>	Brooklyn Crossover	CLOSED								

## Demand Forecast

Day 0	2020-08-22	TJ	KSCM	Demand Forecast Id	76128 (Modified)	System Distribution	Close
Hour	System	Newport	Jeeralang	Loy Yang	Somerton	Laverton	Total
06:00	32	0	0	0	0	0	32
07:00	43.8	0	0	0	0	0	43.8
08:00	59.7	0	0	0	0	0	59.7
09:00	66	0	0	0	0	0	66

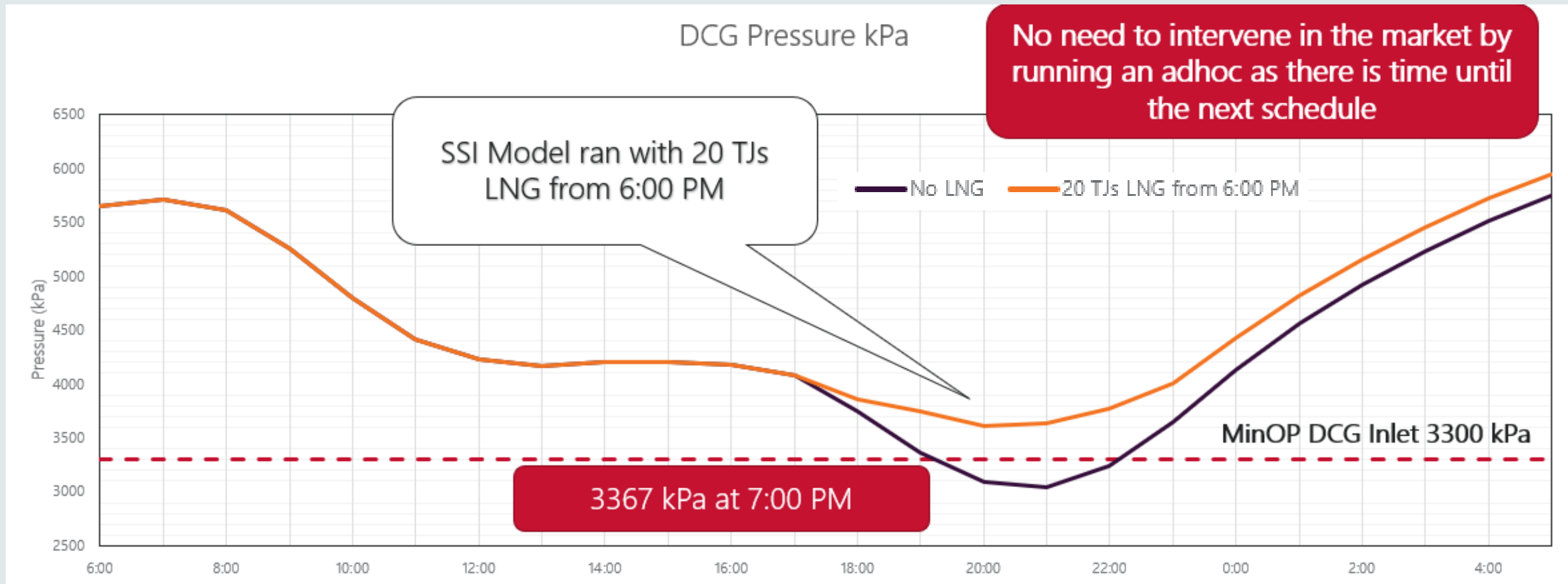
## Compressor Commitment

Day 02020-08-22

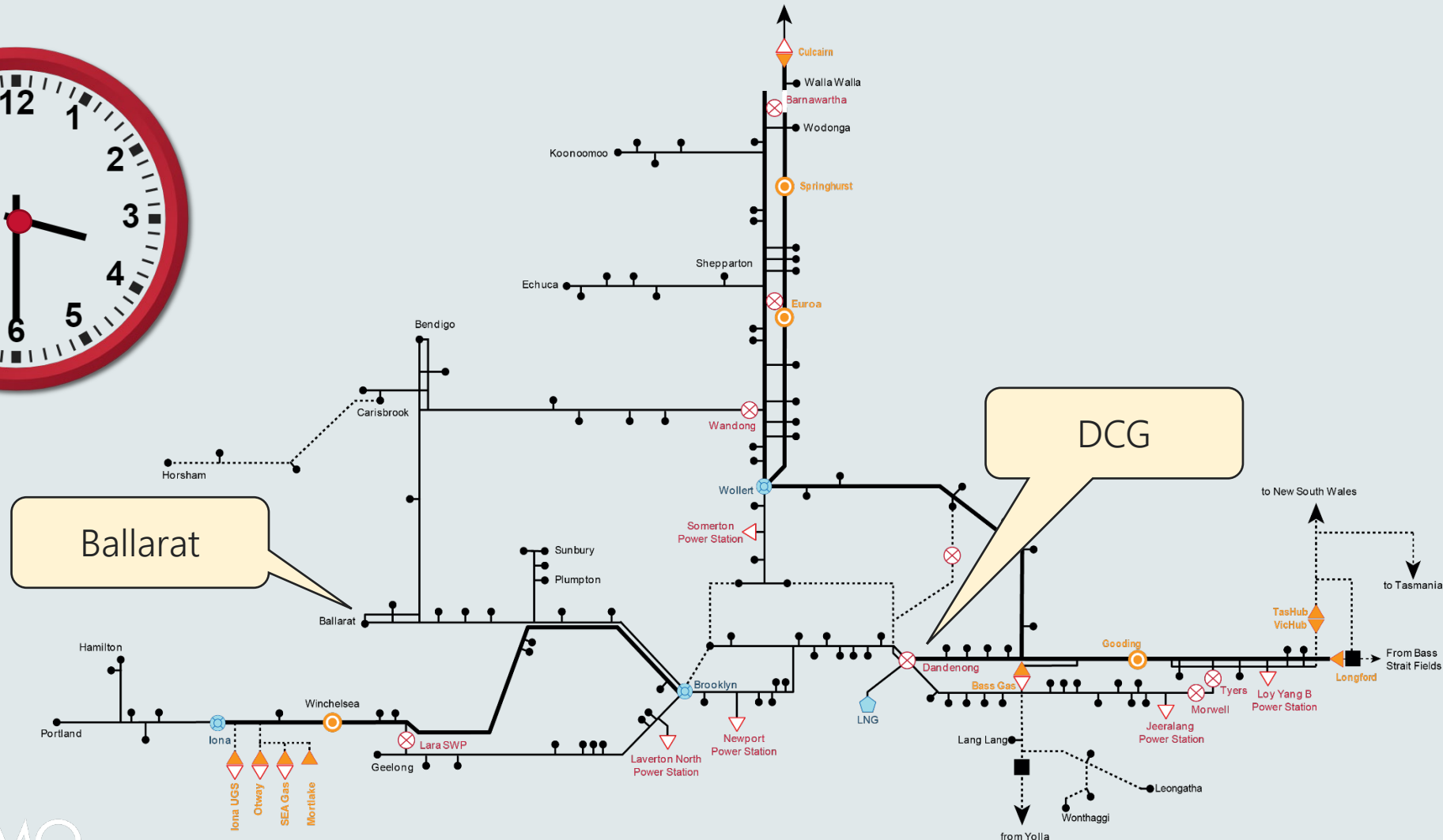
Expand AllCollapse AllClose

			Initial SPs	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	00:00	01:00	02:00	03:00	04:00	05:00
Brooklyn	Unit 8	Status	OFF															
	Unit 9	Status	OFF															
	Unit 10	Status	OFF															
	Unit 11	Status	OFF															
	Unit 11	Series/Parallel	SERIES															
	Unit 12	Status	OFF			M2BBP												
	BCP Header	Inlet	2500															
	BCP Header	Outlet	5000															
	BCP Header	Engine Speed	100															
	BBP Header	Outlet	7200															
BBP Header	Engine Speed	100																
	Melbourne	Inlet	1800															
Winchlesea	Unit 1	Status	OFF															
Iona	Unit 1	Status	OFF															
Wollert A	Unit 1	Status	OFF															
Wollert B	Unit 4	Status	OFF															
Euroa	Unit 1	Status	OFF															
Springhurst	Unit 1	Status	N2S															
Gooding	Unit 1	Status	OFF															

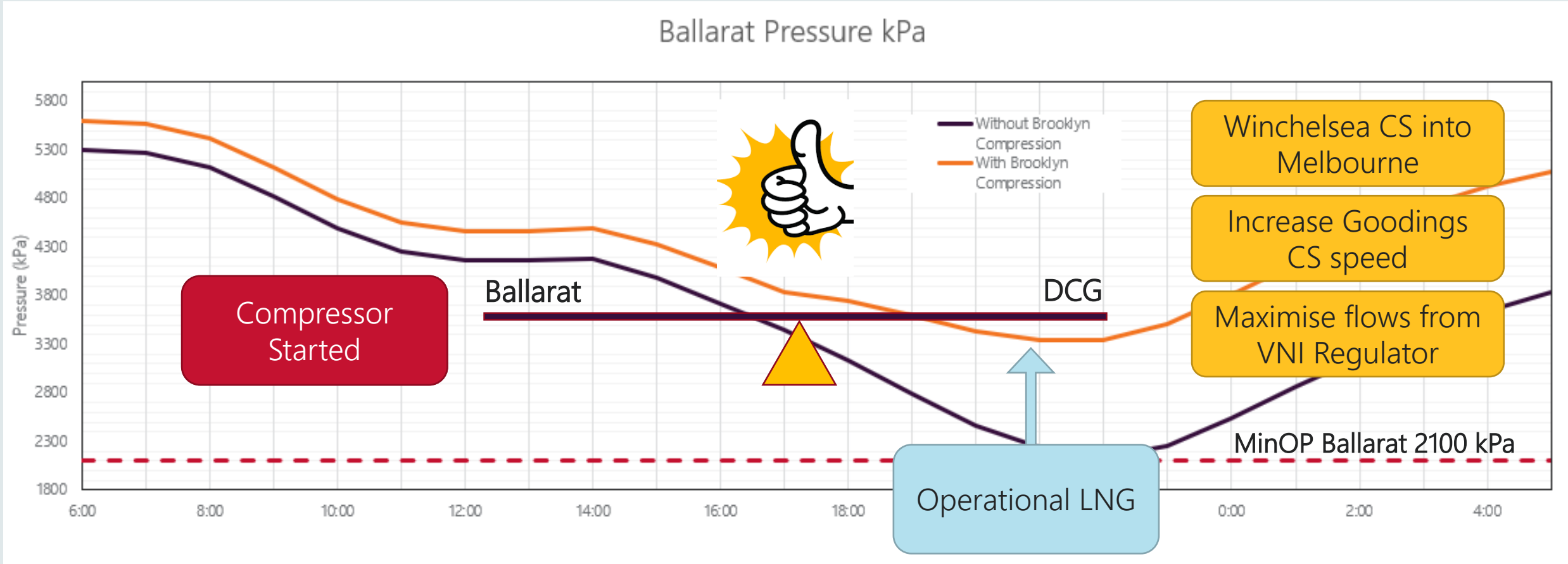
# 3:30 PM – modelling result



# 3:30 PM – other vulnerabilities: Ballarat



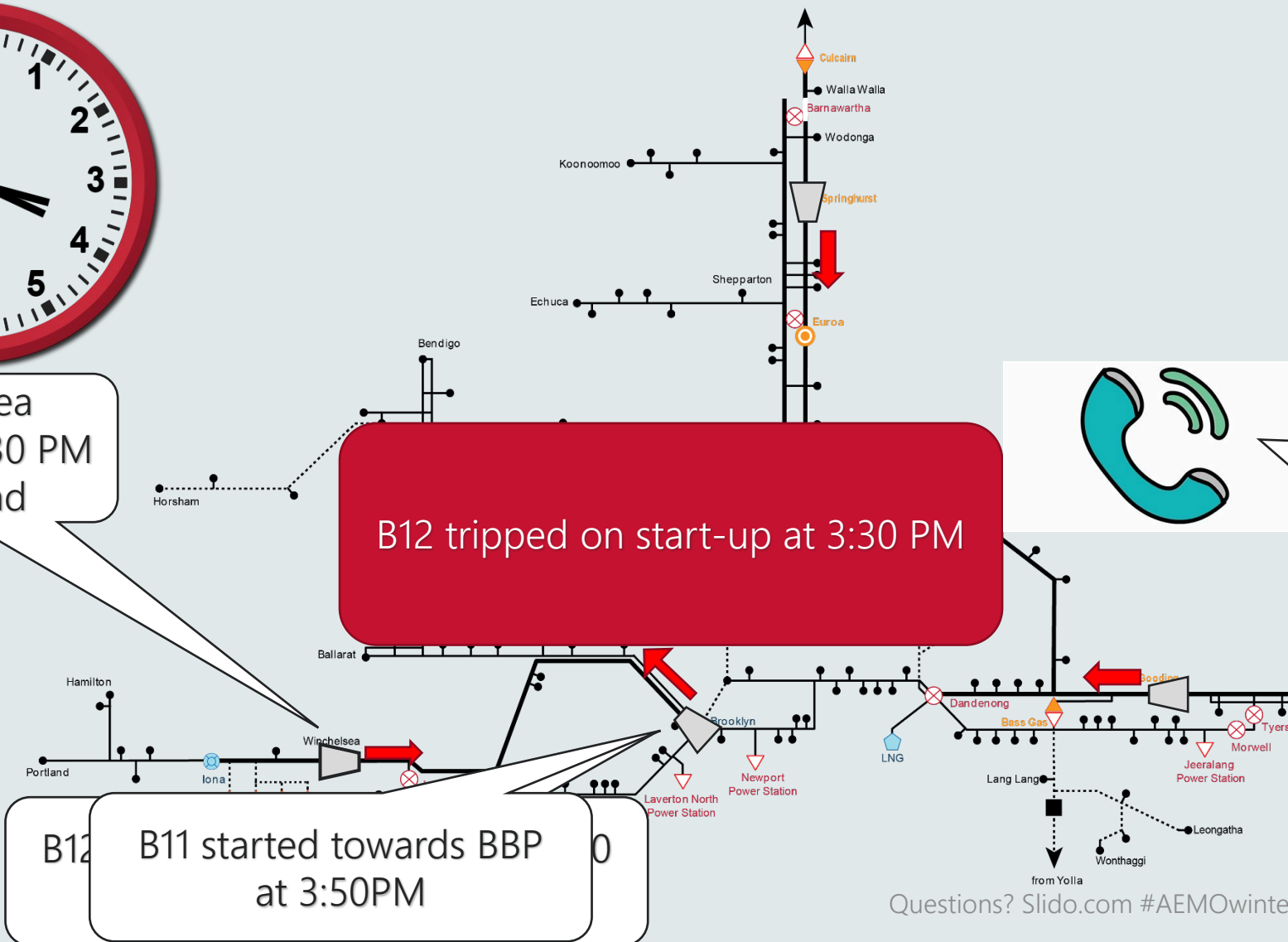
# 3:30 PM – other vulnerabilities: Ballarat



# 3:30 PM– operational changes in response to system model results



Winchelsea started at 4:30 PM Eastbound



Hi APA, can you try starting Unit 12 from your Control Room?

Hi AEMO, it doesn't seem to be working, give Unit 11 a go. We will send a tech out to have a look.

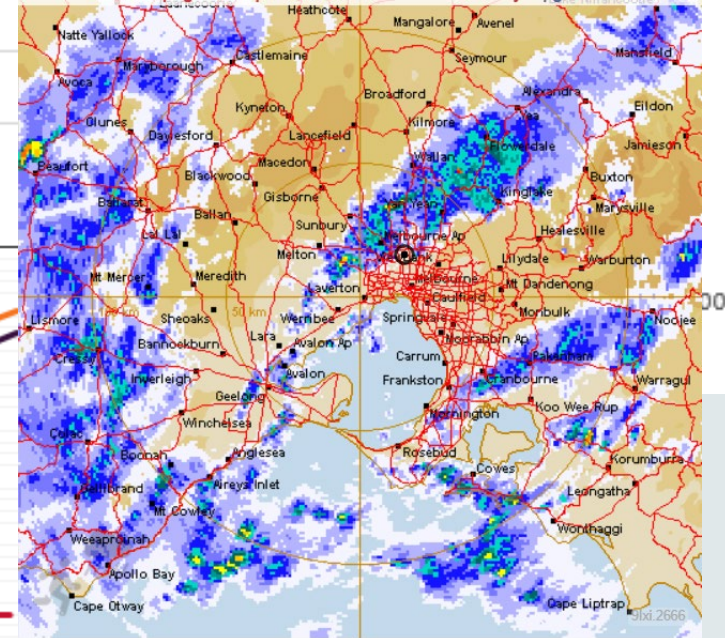
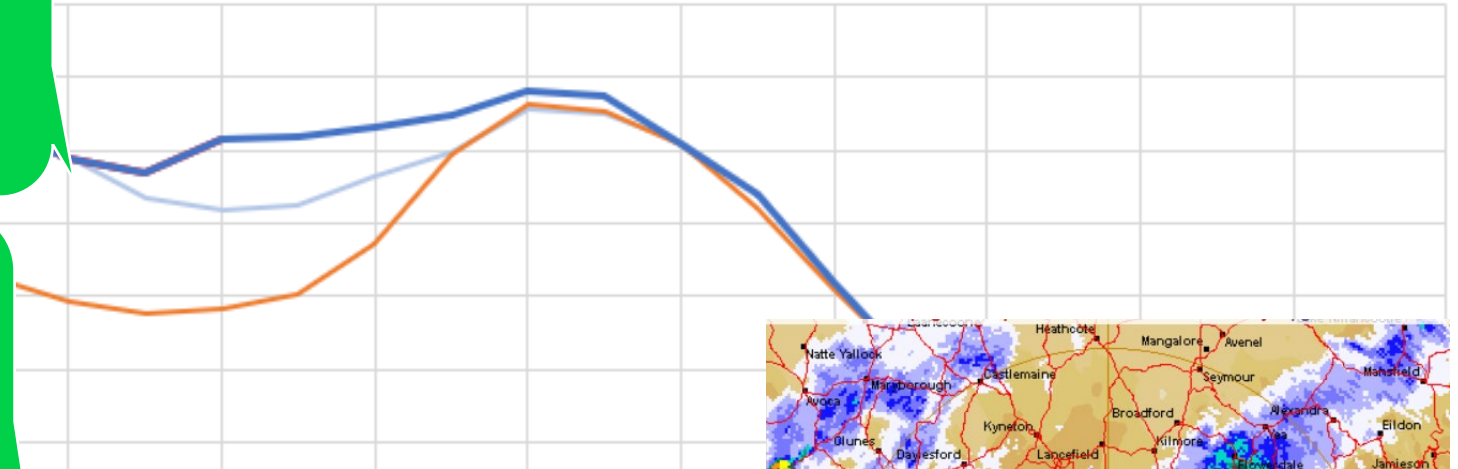
# 4:30 PM - decision point



22-Aug-2020 4:55PM  
Constraint applied at Culcairn  
inj/wdl meter to 5400 GJ/h  
net inj from 18:00 on  
22/08/20 at facility operator  
request.

22-Aug-2020 5:00PM  
{CRITICAL} AEMO is taking  
action at the next schedule  
in response to a threat to  
system security for gas day  
22/08/2020 in ALL WZ. See  
MIBB attachment.

3:15PM forecast for 22 Aug 2020

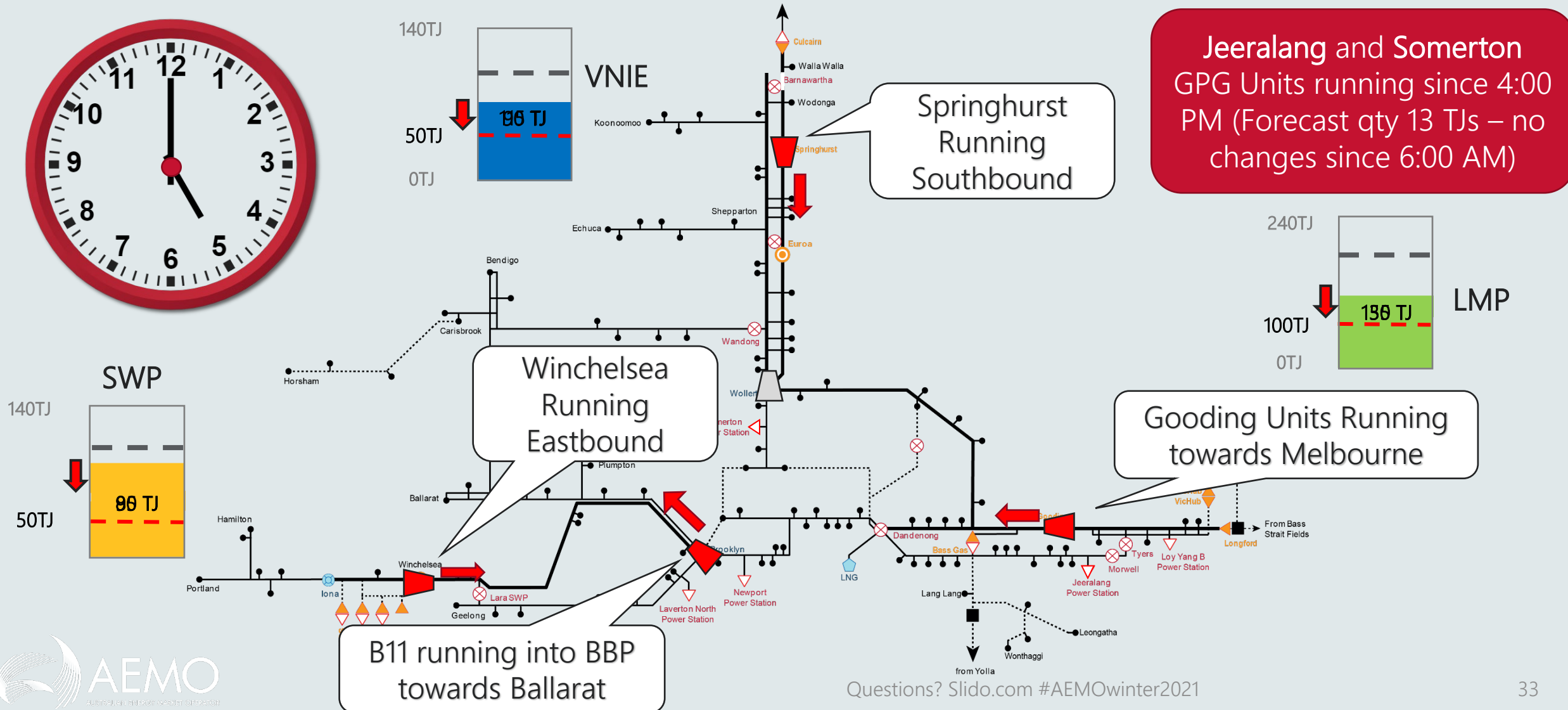




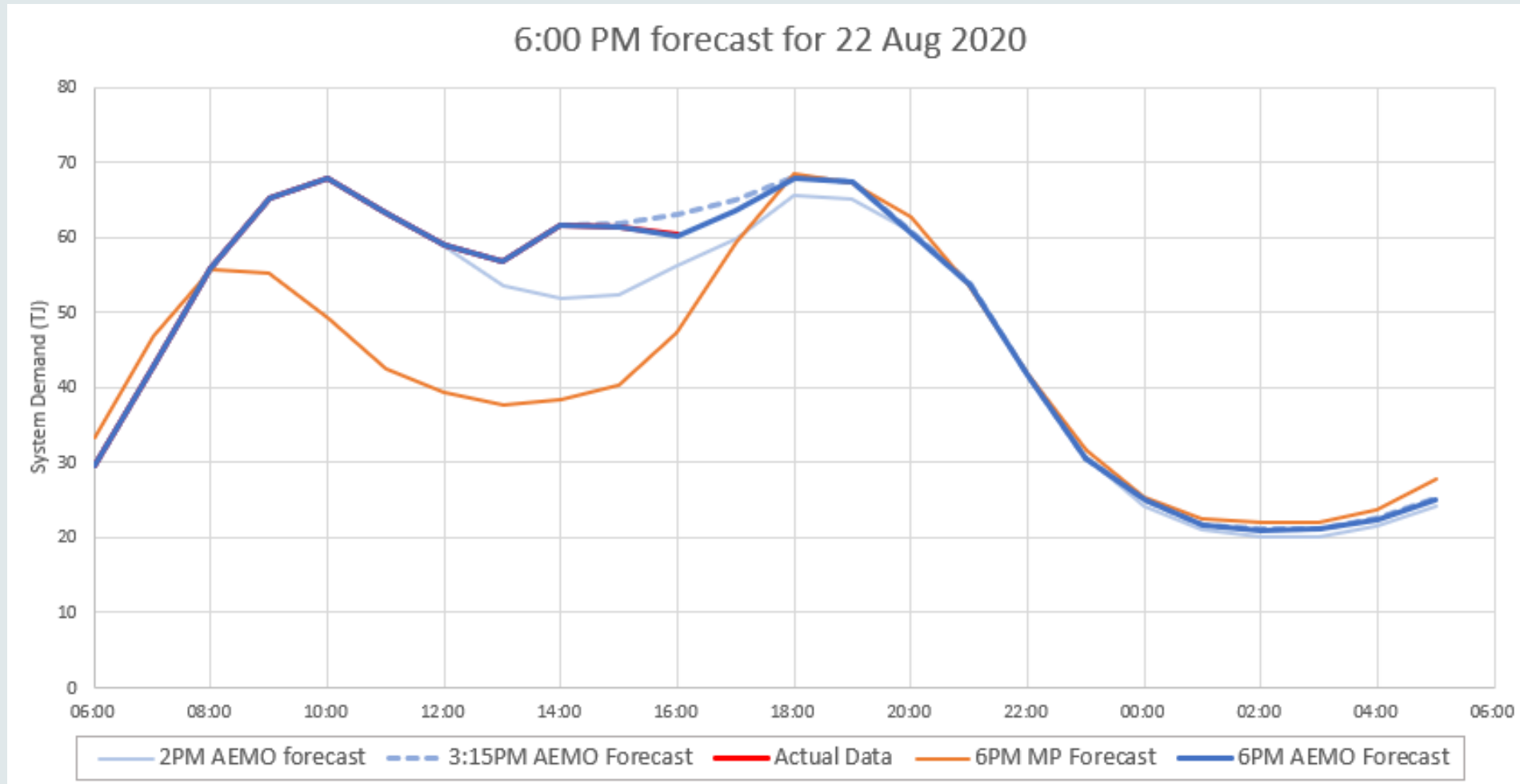
22 August 2020  
6:00 PM horizon



# 6:00 PM horizon – system status at 5:00 PM



# 6:00 PM horizon – demand forecast



# 6:00 PM horizon – schedule outcome



-2 ↓ Culcairn: 118 TJ

22-Aug-2020 5:05PM  
As per Threat to System Security,  
constraint applied at Dandenong  
LNG inj meter to 5000 GJ/h from  
18:00 to 21:00 on 22/08/20.

5.4 TJ/h

Flows reduce to  
34 TJ/h at 8:00 PM  
due to profiling

Longford: 744 TJ  
VicHub: 48 TJ  
TasHub: 39 TJ  
BassGas: 32 TJ

+4 ↑ **Total: 863 TJ**

Iona: 165 TJ  
SEAGas: 9 TJ  
Mortlake: 0 TJ  
Otway: 0 TJ  
+26

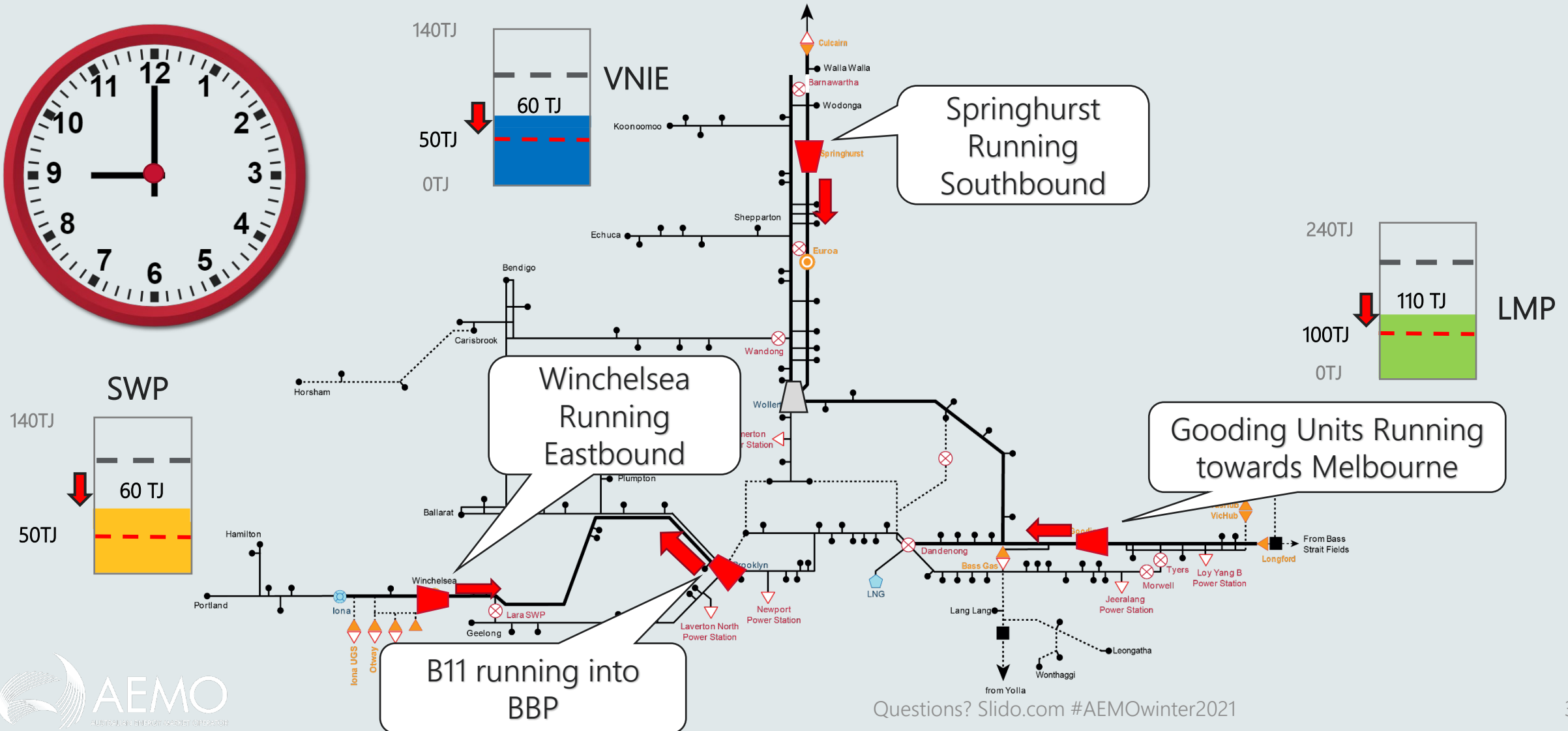
**Total: 174 TJ**  
8.5 TJ/h

Operational LNG (OS Only  
Constraint) for 20 TJs starting  
from 6:00 PM

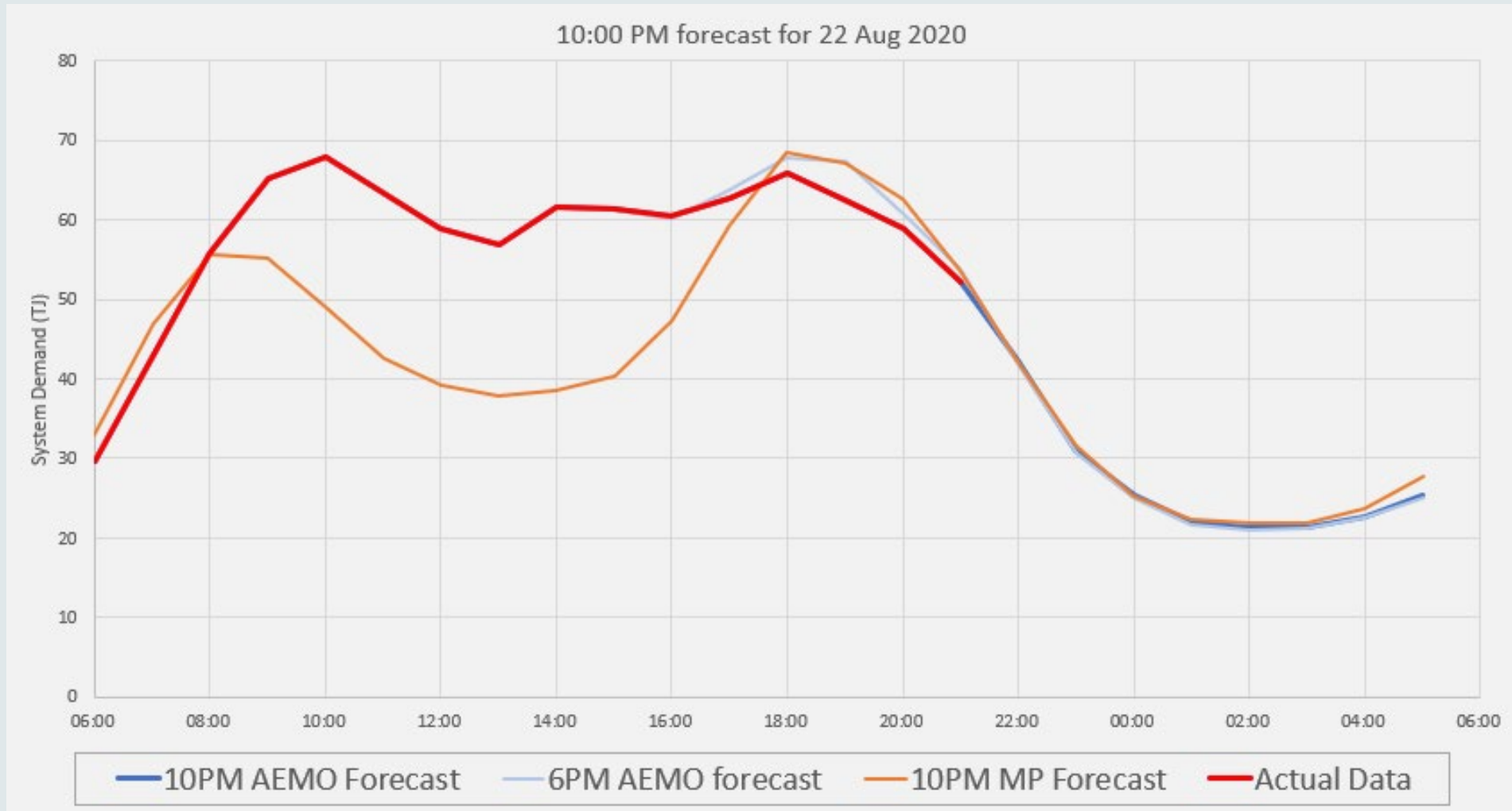
34 TJ/h

22 August 2020  
10:00 PM horizon

# 10:00 PM horizon – system status at 9:00 PM



# 10:00 PM horizon – demand forecast



# 10:00 PM horizon – schedule outcome



Culcairn: 118 TJ

5.4 TJ/h

Wollert 4 started 2:30 AM  
towards Culcairn to manage  
LMP Linepack

22-Aug-2020 9:05PM  
Threat to system security for gas  
day 22/08/2020 has ended.

Longford: 744 TJ  
VicHub: 48 TJ  
TasHub: 39 TJ  
BassGas: 32 TJ

**Total: 863 TJ**

Iona: 165 TJ  
SEAGas: 9 TJ  
Mortlake: 0 TJ  
Otway: 0 TJ

-2

8.2 TJ/h

34 TJ/h

Operational LNG injection  
stops at 10:00 PM

B11 stopped at 9:30 PM (Once  
Ballarat started to build)

# What if scenarios



# What if scenarios

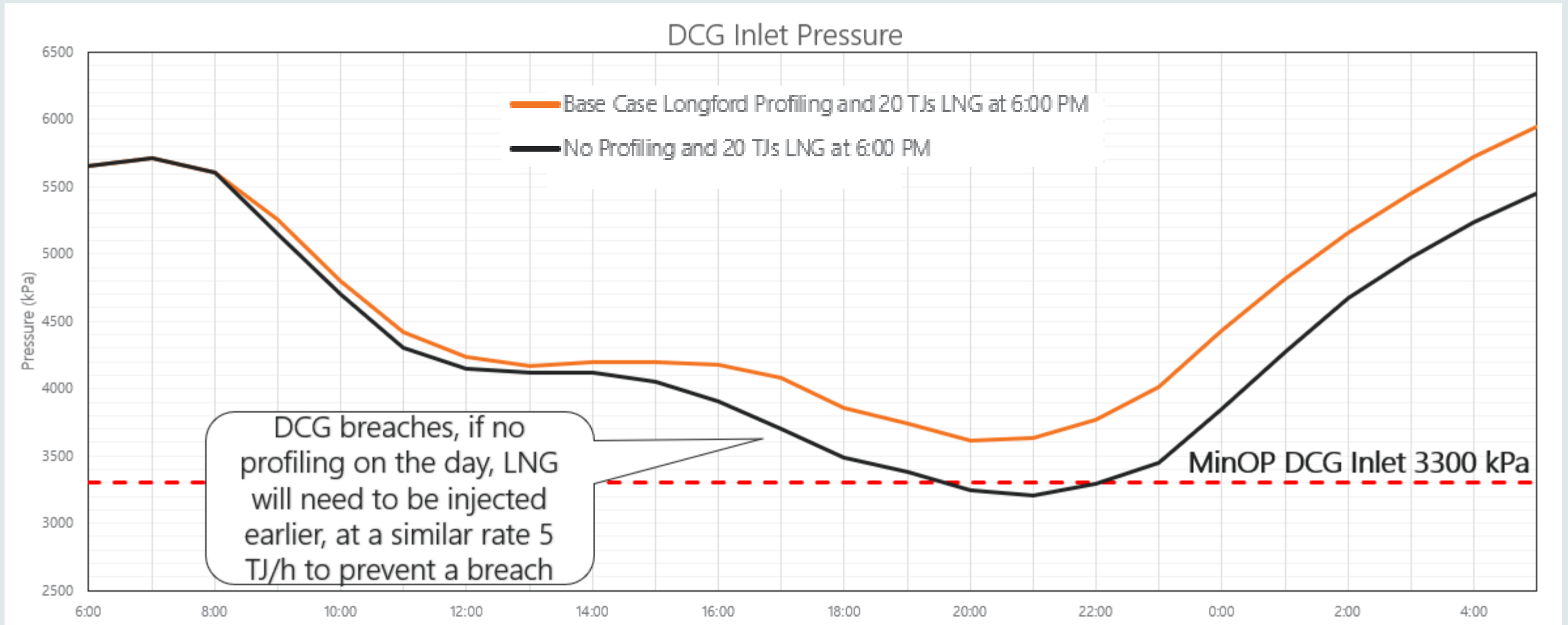
- What if we hadn't
- What if the demand



r?

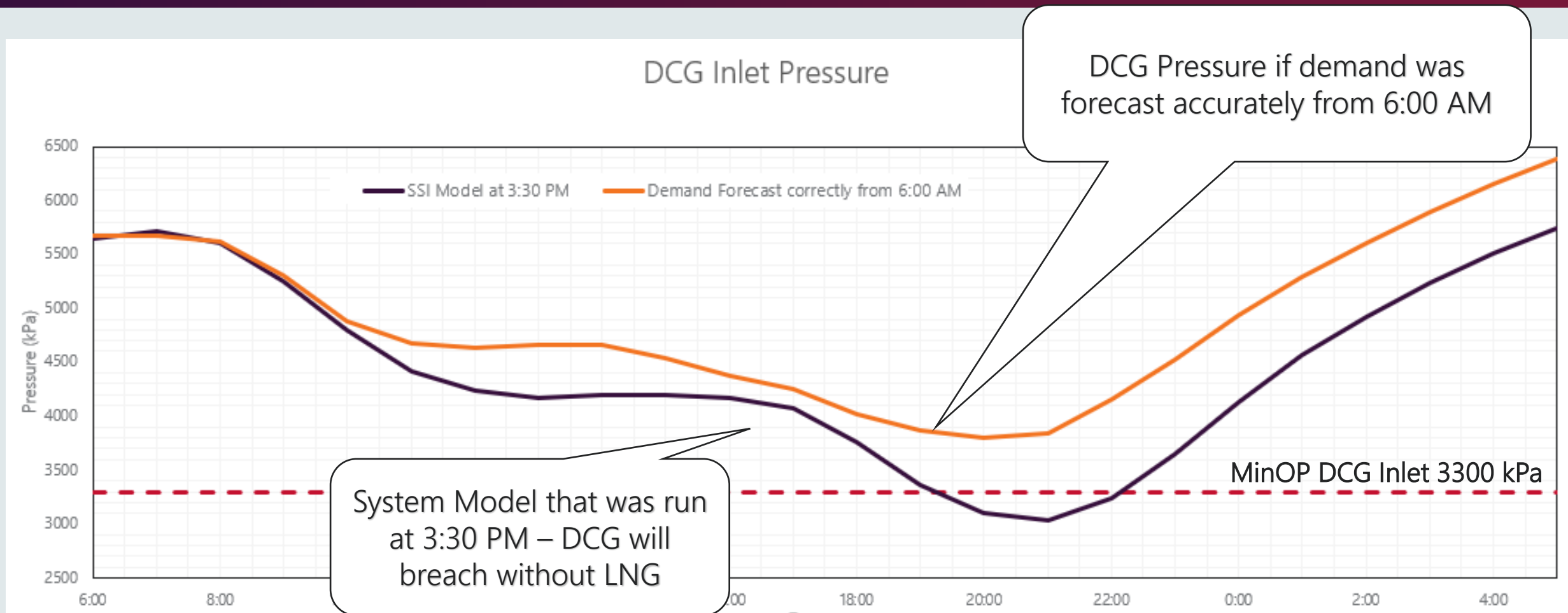
# What if we hadn't profiled Longford?

# What if we hadn't profiled Longford?



# What if the demand profile was better?

# What if the demand profile was better?



# Key takeaways

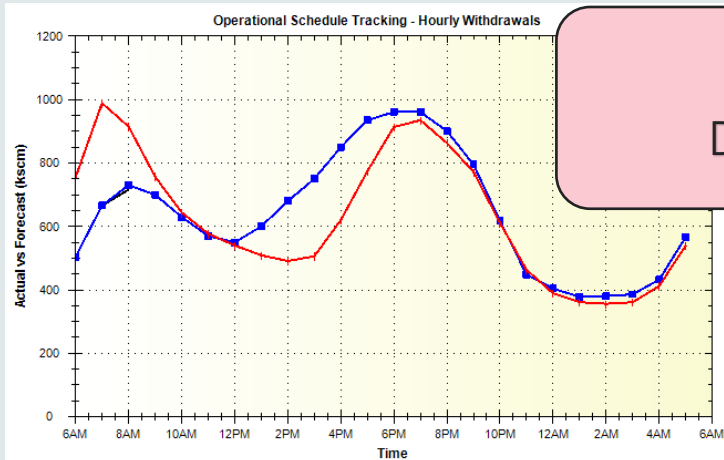
# Key takeaways



Gas Operations Engineers  
and Winter



Profiling and Operational  
LNG



Good  
Demand Forecast