Virtual Welded Points, Demonstration Model

C Maui delivery point

G virtual delivery point

North

Maui

South

A residual delivery pooling point

M

N

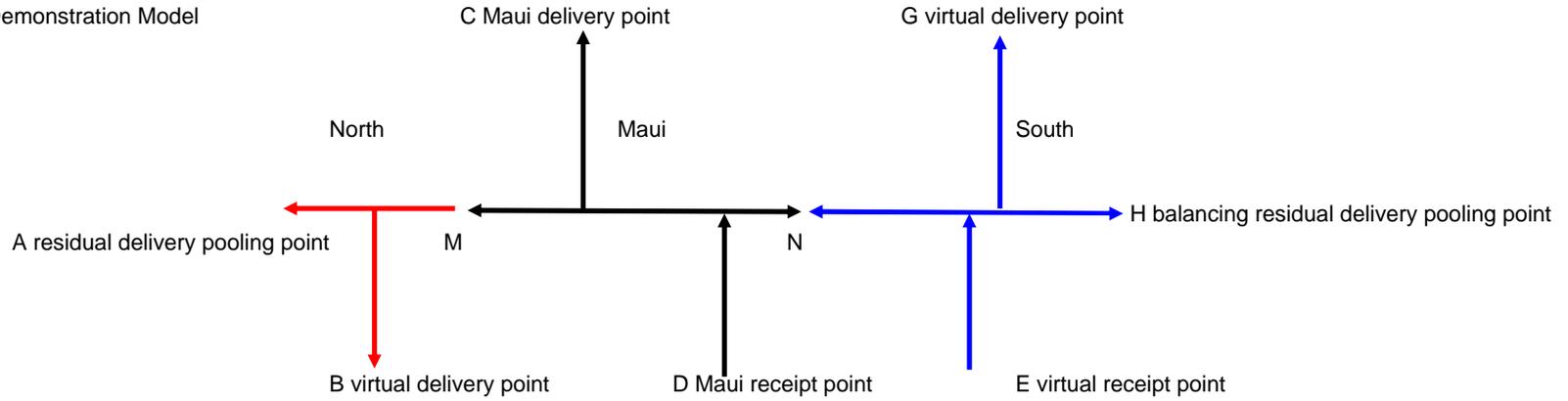H balancing residual delivery pooling point

B virtual delivery point

D Maui receipt point

E virtual receipt point

Maui pipeline

Vector north pipeline

Vector south pipeline

A, B, C, G and H are delivery points

D and E are receipt points

B, E and G are virtual welded points

A and H are residual pooling points (because H is used to balance nominations it may be -ve but that is not a permitted)

x, y and z are shippers and may withdraw gas at any delivery point or inject gas at any receipt point

M and N are TP welded points

N is bidirectional

Input Assumptions (Section references refer to "Establishment of Virtual or Notional Welded Points at Vector Receipt Points and Delivery Points", 17 July 2009 draft)

Nominations

Shipper		x	y	z	
Receipt points					
Maui welded points					
D		18	22	15	
Virtual welded points					
E		5	2	12	
Delivery points					
Maui welded points					
C		0	10	9	
Vrtual welded points					
B		6	5	4	
G		5	2	2	
Residual delivery points					
A		10	2	9	
H (balancing residual, as all receipt points are MPOC or virtual welded points nominations -ve residual nomination not permitted)		Calculated below, each shipper's total receipt point nominations must equal that shipper's total delivery point nominations			
Permitted nominations (each shipper's receipts must equal that shipper's deliveries)		TRUE	TRUE	TRUE	

Metered Quantities

Receipt points			
Maui welded points			
D		8	
Virtual welded points			
E		10	
Delivery points			
Maui welded points			
C		5	
Virtual welded points			
B		10	
G		6	
Residual delivery points			
A		5	
H		7	
TP welded point			
North pipeline		10	
South pipeline, +ve MPOC delivery/-ve MPOC receipt		12	

Reconciliation at residual pooling points (substitiute for allocations under Reconciliation Regulations)   Metered quantity allocated in proportion to nominations

Calculations

Nominations (each shippers' receipt nominations must balance that shipper's delivery nominations, sections 13 to 17)

Shipper	x	y	z	Total Nominations or Scheduled Qantity
Receipt points				
Maui welded points				
D	18	22	15	55
Sub total Maui welded points	18	22	15	55
Virtual welded points				
E	5	2	12	19
Sub total virtual welded points	5	2	12	19
Total receipt point nominations	23	24	27	74

	x	y	z	Total
Delivery points				
Maui welded points				
C	0	10	9	19
Sub total Maui welded points	0	10	9	19
Virtual welded points				
B	6	5	4	15
G	5	2	2	9
Sub total virtual welded points	11	7	6	24
Residual delivery points				
A	10	2	9	21
H (balancing residual, as all receipt points are either MPOC welded points or virtual welded points receipt point residual must be zero)				
H delivery point residual	2	5	3	10
H receipt point residual (as all receipt points are either MPOC welded points or virtual welded points nominations are not permitted if th	0	0	0	0
Total H (balancing residual)	2	5	3	10
Sub total residual delivery points	12	7	12	31
Total delivery point nominations	23	24	27	74
Balance check (total receipt nominations must equal total delivery nominations)	TRUE	TRUE	TRUE	TRUE

TP Welded Point Nominations (sections 21 to 23)

Shipper	x	y	z	Total Nominations or Scheduled Qantity
North pipeline				
TP welded point for delivery (delivery point only)	16	7	13	36
South pipeline				
TP welded point for delivery from Maui	2	5	0	7
TP welded point for receipt into Maui	0	0	-7	-7
Net south pipeline TP welded point	2	5	-7	0

Metered Quantities (sections 24 to 26)

Receipt points				
Maui welded points				
D	8			
Sub total Maui welded points	8			
Virtual welded points				
E	10			
Sub total virtual welded points	10			
Total receipt point metered quantity	18			
Delivery points				
Maui welded points				
C	5			
Sub total Maui welded points	5			
Vitual welded points				
B	10			
G	6			
Sub total virtual welded points	16			
Residual delivery points				
A	5			
H	7			
Sub total residual delivery points	12			
Total delivery point metered quantity	33			
TP welded point				
North pipeline	10			
South pipeline, +ve MPOC delivery/-ve MPOC receipt	12			
Sub total TP welded points	22			

Total metered quantity, +ve net increase in line pack/-ve net reduction in line pack				-15

Line pack changes, +ve increase/-ve reduction
    Maui pipeline   -19
    North pipeline   -5
    South pipeline   9
    Total line pack changes   -15
Balance check metered quantity (total of receipt metered quantities must equal total of delivery metered quantities after allowance for line pack change   TRUE

Operational Imbalances (sections 27 and 28)
    Receipt points
        Maui welded points
            D   -47
        Sub total Maui welded points   -47
        Virtual welded points
            E   -9
        Sub total virtual welded points   -9
Total receipt point operational imbalance   -56
    Delivery points
        Maui welded points
            C   14
        Sub total Maui welded points   14
        Vitual welded points
            B   5
            G   3
        Sub total virtual welded points   8
        Residual delivery points
            A   16
            H   3
        Sub total residual delivery points   19
        Total delivery point operational imbalance   41
    Total net operational imbalance of receipt points and delivery points   -15
    Balance check, net operational imbalance = net linepack change   TRUE
    TP welded point operational imbalance
        North pipeline   26
        South pipeline, +ve MPOC delivery/-ve MPOC receipt   -12
        Total TP welded points operational imbalance   14

Mismatch at Residual Pooling Points (section 29)

Shipper	x	y	z	Total
North pipeline, residual pooling point A				
Allocation of metered quantity at residual pooling point, (assumes allocation prorata nominations)	2.380952	0.476190	2.142857	5
Nomination	10	2	9	21
Mismatch at Residual Pooling Points	7.619048	1.523810	6.857143	16
South pipeline, residual pooling point H				
Allocation of metered quantity at residual pooling point, (assumes allocation prorata nominations)	1.400000	3.500000	2.100000	7
Nomination	2	5	3	10
Mismatch at Residual Pooling Points	0.600000	1.500000	0.900000	3

Recovery of Operational Imbalance at TP Welded Points (section 30)
    North pipeline
        Total opertional Imbalance at TP welded point   26
            Recovery from virtual welded parties, by MDL
                Virtual welded point B   5
            Recovery from shippers at residual welded point, A, by Vector
                Shipper x   7.619048

Shipper y	1.523810
Shipper z	6.857143
Total recovery at A	16
Linepack change, recovered from Vector	5
Total recovery	26

South pipeline

Total opertional Imbalance at TP welded point	-12
Recovery from virtual welded parties, by MDL	
Virtual welded point E	-9
Virtual welded point G	3
Recovery from shippers at residual welded point, H, by Vector	
Shipper x	0.600000
Shipper y	1.500000
Shipper z	0.900000
Total recovery at H	3
Linepack change, recovered from Vector	-9
Total recovery	-12