Contents

[1. Symptoms 2](#_Toc413841309)

[2. Check statistics 34](#_Toc413841310)

[3. Running SQL Tuning Advisor 37](#_Toc413841311)

[4. Implementing the SQL Profile 38](#_Toc413841312)

[5. Check the SQL Profile is used 38](#_Toc413841313)

# Symptoms

We notice that the below query is sometimes changing execution plans, probably related to the volume of data that should be treated.

WITH LAST\_NAME AS (SELECT DISTINCT NODE\_TE\_ID, LAST\_NODE\_NAME

FROM (SELECT NODE\_TE\_ID,

LAST\_VALUE (

NODE\_NAME)

OVER (

PARTITION BY NODE\_TE\_ID

ORDER BY VALID\_TO ASC

RANGE BETWEEN CURRENT ROW

AND UNBOUNDED FOLLOWING)

AS LAST\_NODE\_NAME

FROM A2\_NODE\_HIS A2NH

WHERE A2NH.VALID\_FROM < :B2

AND A2NH.VALID\_TO > :B1)),

SECTORS

AS (SELECT CAST (

TO\_CHAR (

GREATEST (

NVL (A2RM.MEMB\_START\_GAS\_DAY, '01-jan-1900'),

NVL (A2RH.VALID\_FROM, '01-jan-1900')),

'YYYY') AS INTEGER)

\* 100

+ CAST (

TO\_CHAR (

GREATEST (

NVL (A2RM.MEMB\_START\_GAS\_DAY, '01-jan-1900'),

NVL (A2RH.VALID\_FROM, '01-jan-1900')),

'MM') AS INTEGER)

AS YEAR\_MONTH\_VALID\_FROM,

CAST (

TO\_CHAR (

LEAST (NVL (A2RM.MEMB\_END\_GAS\_DAY, '31-dec-9999'),

NVL (A2RH.VALID\_TO, '31-dec-9999')),

'YYYY') AS INTEGER)

\* 100

+ CAST (

TO\_CHAR (

LEAST (NVL (A2RM.MEMB\_END\_GAS\_DAY, '31-dec-9999'),

NVL (A2RH.VALID\_TO, '31-dec-9999')),

'MM') AS INTEGER)

AS YEAR\_MONTH\_VALID\_TO,

A2RM.TE\_ID,

A2RH.REGR\_NAME

FROM A2\_REGR A2R

INNER JOIN A2\_REGR\_HIS A2RH

ON A2R.REGR\_ID = A2RH.REGR\_ID

INNER JOIN A2\_REGR\_MEMB A2RM

ON A2RM.REGR\_ID = A2R.REGR\_ID

WHERE (UPPER (A2R.REGR\_PURP\_CODE) =

UPPER ('OwnConsumptionReporting'))),

GAS\_DAYS AS (SELECT DISTINCT GAS\_DAY

FROM GAS\_HOUR

WHERE GAS\_DAY BETWEEN :B1 AND :B2),

MTS\_MEMB\_ADJ

AS (SELECT MEMB\_START\_GAS\_DAY AS MTS\_START\_GAS\_DAY,

MEMB\_END\_GAS\_DAY AS MTS\_END\_GAS\_DAY,

CASE

WHEN MEMB\_START\_GAS\_DAY < :B1 THEN :B1

ELSE MEMB\_START\_GAS\_DAY

END

AS ADJ\_START\_GAS\_DAY,

CASE

WHEN MEMB\_START\_GAS\_DAY < :B1 THEN 01

ELSE MEMB\_START\_GAS\_HOUR\_NR

END

AS ADJ\_START\_GAS\_HOUR\_NR,

CASE

WHEN MEMB\_END\_GAS\_DAY > :B2 THEN :B2

ELSE MEMB\_END\_GAS\_DAY

END

AS ADJ\_END\_GAS\_DAY,

CASE

WHEN MEMB\_END\_GAS\_DAY > :B2 THEN 25

ELSE MEMB\_END\_GAS\_HOUR\_NR

END

AS ADJ\_END\_GAS\_HOUR\_NR,

TRANSP\_SYS\_TE\_ID AS TRANSP\_SYS\_TE\_ID,

MTS\_TE\_ID AS MTS\_TE\_ID

FROM A2\_MTS\_MEMB

WHERE MEMB\_START\_GAS\_DAY <= :B2

AND MEMB\_END\_GAS\_DAY >= :B1

AND MEMB\_TYPE\_CODE = 'Actual'),

MO\_SUBSET

AS (SELECT MO.TE\_ID,

MO.DERVD\_MEAS\_OBJ\_ID,

MO.PROP\_SYMBOL,

MO.VALID\_FROM,

MO.VALID\_TO

FROM MIS\_DERVD\_MEAS\_OBJ\_V\_HIS MO

WHERE MO.MEAS\_OBJ\_FLG\_ACTIVE = 1

AND MO.VALID\_FROM <= :B2

AND MO.VALID\_TO >= :B1

AND PROP\_SYMBOL IN ('EFwd', 'ERev', 'VnFwd', 'VnRev')),

BORDER\_NODE\_DEFINITIONS

AS (SELECT GD.GAS\_DAY AS GAS\_DAY,

A2N.NODE\_TE\_ID AS NODE\_TE\_ID,

A2N.OA7\_CODIF\_NR AS OA7\_CODIF\_NR,

MO.DERVD\_MEAS\_OBJ\_ID,

MO.PROP\_SYMBOL AS PROP\_SYMBOL,

PCK\_REPORTING.GET\_PROP\_FAMILY (MO.PROP\_SYMBOL)

AS PROP\_FAMILY,

PCK\_REPORTING.GET\_UNIT (MO.PROP\_SYMBOL) AS UNIT,

PCK\_REPORTING.

GET\_FLOW\_DIRECTION ('BORDER',

MO.PROP\_SYMBOL,

A2BNH.CONV\_FLOW\_DIR\_CODE,

A2BNH.FLG\_R\_FLOW\_POSSIBLE)

AS FLOW\_DIRECTION,

A2\_SGRID.SGRID\_CODE AS SGRID\_CODE,

GREATEST (

NVL (A2BNH.VALID\_FROM, '01-jan-1900'),

NVL (A2NH.VALID\_FROM, '01-jan-1900'),

NVL (MO.VALID\_FROM, '01-jan-1900'),

DECODE (

A2MTSA.MTS\_START\_GAS\_DAY,

NULL, TO\_DATE ('01/01/1900', 'dd/mm/yyyy'),

TO\_DATE ('01/01/2009', 'dd/mm/yyyy'), TO\_DATE (

'01/01/2006',

'dd/mm/yyyy'),

A2MTSA.MTS\_START\_GAS\_DAY),

NVL (A2TSM.MEMB\_START\_GAS\_DAY, '01-jan-1900'))

AS VALID\_FROM,

LEAST (NVL (A2BNH.VALID\_TO, '31-dec-9999'),

NVL (A2NH.VALID\_TO, '31-dec-9999'),

NVL (MO.VALID\_TO, '31-dec-9999'),

NVL (A2MTSA.MTS\_END\_GAS\_DAY, '31-dec-9999'),

NVL (A2TSM.MEMB\_END\_GAS\_DAY, '31-dec-9999'))

AS VALID\_TO,

'BORDER' AS NODE\_TYPE\_CODE,

A2BN.BORD\_NODE\_TYPE\_CODE AS NODE\_SUBTYPE\_CODE,

ADJ.GAS\_INST\_NAME AS ADJCT\_GAS\_INST\_NAME,

A2MTSA.MTS\_START\_GAS\_DAY AS MTS\_START\_GAS\_DAY,

A2MTSA.MTS\_END\_GAS\_DAY AS MTS\_END\_GAS\_DAY,

A2TSM.MEMB\_START\_GAS\_DAY AS TSM\_START\_GAS\_DAY,

A2TSM.MEMB\_END\_GAS\_DAY AS TSM\_END\_GAS\_DAY,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

1)

AS H01\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

2)

AS H02\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

3)

AS H03\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

4)

AS H04\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

5)

AS H05\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

6)

AS H06\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

7)

AS H07\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

8)

AS H08\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

9)

AS H09\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

10)

AS H10\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

11)

AS H11\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

12)

AS H12\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

13)

AS H13\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

14)

AS H14\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

15)

AS H15\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

16)

AS H16\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

17)

AS H17\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

18)

AS H18\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

19)

AS H19\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

20)

AS H20\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

21)

AS H21\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

22)

AS H22\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

23)

AS H23\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

24)

AS H24\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

25)

AS H25\_WEIGHT

FROM A2\_TE

INNER JOIN

A2\_NODE A2N

ON A2\_TE.TE\_ID = NODE\_TE\_ID

AND A2N.NODE\_TYPE\_CODE =

'BorderNode'

INNER JOIN

A2\_GAS\_INST FLX

ON A2N.OWN\_GAS\_INST\_TE\_ID =

FLX.GAS\_INST\_TE\_ID

AND FLX.GAS\_INST\_NAME =

'Grid Fluxys'

INNER JOIN

A2\_NODE\_HIS A2NH

ON A2N.NODE\_TE\_ID =

A2NH.NODE\_TE\_ID

AND A2NH.VALID\_FROM <= :B2

AND A2NH.VALID\_TO >= :B1

AND A2NH.NODE\_STAT\_CODE =

'InOperation'

INNER JOIN

MO\_SUBSET MO

ON (A2N.NODE\_TE\_ID = MO.TE\_ID)

INNER JOIN

A2\_BORD\_NODE A2BN

ON A2N.NODE\_TE\_ID = A2BN.BORD\_NODE\_TE\_ID

INNER JOIN

A2\_BORD\_NODE\_HIS A2BNH

ON A2BN.BORD\_NODE\_TE\_ID =

A2BNH.BORD\_NODE\_TE\_ID

AND A2BNH.VALID\_FROM <= :B2

AND A2BNH.VALID\_TO >= :B1

AND ( (A2BNH.CONV\_FLOW\_DIR\_CODE =

'FromAdjInstToOwnInst'

AND MO.PROP\_SYMBOL IN

('EFwd', 'VnFwd'))

OR (A2BNH.CONV\_FLOW\_DIR\_CODE =

'FromOwnInstToAdjInst'

AND A2BNH.FLG\_R\_FLOW\_POSSIBLE =

1

AND MO.PROP\_SYMBOL IN

('ERev', 'VnRev'))

OR (A2BNH.CONV\_FLOW\_DIR\_CODE =

'FromOwnInstToAdjInst'

AND MO.PROP\_SYMBOL IN

('EFwd', 'VnFwd'))

OR (A2BNH.CONV\_FLOW\_DIR\_CODE =

'FromAdjInstToOwnInst'

AND A2BNH.FLG\_R\_FLOW\_POSSIBLE =

1

AND MO.PROP\_SYMBOL IN

('ERev', 'VnRev')))

INNER JOIN

A2\_GAS\_INST ADJ

ON A2BN.ADJCT\_GAS\_INST\_TE\_ID =

ADJ.GAS\_INST\_TE\_ID

INNER JOIN

A2\_TRANSP\_SYS\_MEMB A2TSM

ON (A2N.NODE\_TE\_ID = A2TSM.NODE\_TE\_ID)

AND A2TSM.MEMB\_START\_GAS\_DAY <= :B2

AND A2TSM.MEMB\_END\_GAS\_DAY >= :B1

INNER JOIN

MTS\_MEMB\_ADJ A2MTSA

ON (A2TSM.TRANSP\_SYS\_TE\_ID = A2MTSA.TRANSP\_SYS\_TE\_ID)

AND A2MTSA.MTS\_START\_GAS\_DAY <= :B2

AND A2MTSA.MTS\_END\_GAS\_DAY >= :B1

INNER JOIN

A2\_MTS A2MTS

ON (A2MTSA.MTS\_TE\_ID = A2MTS.MTS\_TE\_ID)

INNER JOIN

A2\_SGRID

ON (A2MTS.SGRID\_TE\_ID = A2\_SGRID.SGRID\_TE\_ID),

GAS\_DAYS GD

WHERE GD.GAS\_DAY BETWEEN :B1 AND :B2

AND GD.GAS\_DAY BETWEEN A2MTSA.MTS\_START\_GAS\_DAY

AND A2MTSA.MTS\_END\_GAS\_DAY

AND GD.GAS\_DAY BETWEEN A2TSM.MEMB\_START\_GAS\_DAY

AND A2TSM.MEMB\_END\_GAS\_DAY

AND GD.GAS\_DAY BETWEEN GREATEST (

NVL (A2BNH.VALID\_FROM,

'01-jan-1900'),

NVL (A2NH.VALID\_FROM,

'01-jan-1900'),

NVL (MO.VALID\_FROM,

'01-jan-1900'),

DECODE (

A2MTSA.MTS\_START\_GAS\_DAY,

NULL, TO\_DATE ('01/01/1900',

'dd/mm/yyyy'),

TO\_DATE ('01/01/2009',

'dd/mm/yyyy'), TO\_DATE (

'01/01/2006',

'dd/mm/yyyy'),

A2MTSA.MTS\_START\_GAS\_DAY),

NVL (A2TSM.MEMB\_START\_GAS\_DAY,

'01-jan-1900'))

AND LEAST (

NVL (A2BNH.VALID\_TO,

'31-dec-9999'),

NVL (A2NH.VALID\_TO,

'31-dec-9999'),

NVL (MO.VALID\_TO, '31-dec-9999'),

NVL (A2MTSA.MTS\_END\_GAS\_DAY,

'31-dec-9999'),

NVL (A2TSM.MEMB\_END\_GAS\_DAY,

'31-dec-9999'))),

SUPPLY\_NODE\_DEFINITIONS

AS (SELECT GD.GAS\_DAY AS GAS\_DAY,

A2N.NODE\_TE\_ID AS NODE\_TE\_ID,

A2N.OA7\_CODIF\_NR AS OA7\_CODIF\_NR,

MO.DERVD\_MEAS\_OBJ\_ID AS DERVD\_MEAS\_OBJ\_ID,

MO.PROP\_SYMBOL AS PROP\_SYMBOL,

PCK\_REPORTING.GET\_PROP\_FAMILY (MO.PROP\_SYMBOL)

AS PROP\_FAMILY,

PCK\_REPORTING.GET\_UNIT (MO.PROP\_SYMBOL) AS UNIT,

PCK\_REPORTING.GET\_FLOW\_DIRECTION ('SUPPLY',

NULL,

NULL,

NULL)

AS FLOW\_DIRECTION,

A2\_SGRID.SGRID\_CODE AS SGRID\_CODE,

GREATEST (

NVL (A2SNH.VALID\_FROM, '01-jan-1900'),

NVL (A2NH.VALID\_FROM, '01-jan-1900'),

NVL (MO.VALID\_FROM, '01-jan-1900'),

DECODE (

A2MTSA.MTS\_START\_GAS\_DAY,

NULL, TO\_DATE ('01/01/1900', 'dd/mm/yyyy'),

TO\_DATE ('01/01/2009', 'dd/mm/yyyy'), TO\_DATE (

'01/01/2006',

'dd/mm/yyyy'),

A2MTSA.MTS\_START\_GAS\_DAY),

NVL (A2TSM.MEMB\_START\_GAS\_DAY, '01-jan-1900'))

AS VALID\_FROM,

LEAST (NVL (A2SNH.VALID\_TO, '31-dec-9999'),

NVL (A2NH.VALID\_TO, '31-dec-9999'),

NVL (MO.VALID\_TO, '31-dec-9999'),

NVL (A2MTSA.MTS\_END\_GAS\_DAY, '31-dec-9999'),

NVL (A2TSM.MEMB\_END\_GAS\_DAY, '31-dec-9999'))

AS VALID\_TO,

'SUPPLY' AS NODE\_TYPE\_CODE,

A2SNH.SUP\_NODE\_TYPE\_CODE AS NODE\_SUBTYPE\_CODE,

NULL AS ADJCT\_GAS\_INST\_NAME,

A2MTSA.MTS\_START\_GAS\_DAY AS MTS\_START\_GAS\_DAY,

A2MTSA.MTS\_END\_GAS\_DAY AS MTS\_END\_GAS\_DAY,

A2TSM.MEMB\_START\_GAS\_DAY AS TSM\_START\_GAS\_DAY,

A2TSM.MEMB\_END\_GAS\_DAY AS TSM\_END\_GAS\_DAY,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

1)

AS H01\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

2)

AS H02\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

3)

AS H03\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

4)

AS H04\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

5)

AS H05\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

6)

AS H06\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

7)

AS H07\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

8)

AS H08\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

9)

AS H09\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

10)

AS H10\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

11)

AS H11\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

12)

AS H12\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

13)

AS H13\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

14)

AS H14\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

15)

AS H15\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

16)

AS H16\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

17)

AS H17\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

18)

AS H18\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

19)

AS H19\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

20)

AS H20\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

21)

AS H21\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

22)

AS H22\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

23)

AS H23\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

24)

AS H24\_WEIGHT,

PCK\_REPORTING.CALC\_WEIGHT (ADJ\_START\_GAS\_DAY,

ADJ\_START\_GAS\_HOUR\_NR,

ADJ\_END\_GAS\_DAY,

ADJ\_END\_GAS\_HOUR\_NR,

GAS\_DAY,

25)

AS H25\_WEIGHT

FROM A2\_TE

INNER JOIN

A2\_NODE A2N

ON A2\_TE.TE\_ID = NODE\_TE\_ID

AND A2N.NODE\_TYPE\_CODE =

'SupplyNode'

INNER JOIN

A2\_GAS\_INST FLX

ON A2N.OWN\_GAS\_INST\_TE\_ID =

FLX.GAS\_INST\_TE\_ID

AND FLX.GAS\_INST\_NAME =

'Grid Fluxys'

INNER JOIN

A2\_NODE\_HIS A2NH

ON A2N.NODE\_TE\_ID = A2NH.NODE\_TE\_ID

AND A2NH.VALID\_FROM <= :B2

AND A2NH.VALID\_TO >= :B1

AND A2NH.NODE\_STAT\_CODE =

'InOperation'

INNER JOIN

MO\_SUBSET MO

ON (A2N.NODE\_TE\_ID = MO.TE\_ID)

INNER JOIN

A2\_SUP\_NODE A2SN

ON A2N.NODE\_TE\_ID = A2SN.SUP\_NODE\_TE\_ID

INNER JOIN

A2\_SUP\_NODE\_HIS A2SNH

ON A2SN.SUP\_NODE\_TE\_ID = A2SNH.SUP\_NODE\_TE\_ID

AND A2SNH.FLG\_CONN\_THRU\_OTHER\_NODE = 0

AND A2SNH.VALID\_FROM <= :B2

AND A2SNH.VALID\_TO >= :B1

INNER JOIN

A2\_TRANSP\_SYS\_MEMB A2TSM

ON (A2N.NODE\_TE\_ID = A2TSM.NODE\_TE\_ID)

AND A2TSM.MEMB\_START\_GAS\_DAY <= :B2

AND A2TSM.MEMB\_END\_GAS\_DAY >= :B1

INNER JOIN

MTS\_MEMB\_ADJ A2MTSA

ON (A2TSM.TRANSP\_SYS\_TE\_ID = A2MTSA.TRANSP\_SYS\_TE\_ID)

AND A2MTSA.MTS\_START\_GAS\_DAY <= :B2

AND A2MTSA.MTS\_END\_GAS\_DAY >= :B1

INNER JOIN

A2\_MTS A2MTS

ON (A2MTSA.MTS\_TE\_ID = A2MTS.MTS\_TE\_ID)

INNER JOIN

A2\_SGRID

ON (A2MTS.SGRID\_TE\_ID = A2\_SGRID.SGRID\_TE\_ID),

GAS\_DAYS GD

WHERE GD.GAS\_DAY BETWEEN :B1 AND :B2

AND GD.GAS\_DAY BETWEEN A2MTSA.MTS\_START\_GAS\_DAY

AND A2MTSA.MTS\_END\_GAS\_DAY

AND GD.GAS\_DAY BETWEEN A2TSM.MEMB\_START\_GAS\_DAY

AND A2TSM.MEMB\_END\_GAS\_DAY

AND GD.GAS\_DAY BETWEEN GREATEST (

NVL (A2SNH.VALID\_FROM,

'01-jan-1900'),

NVL (A2NH.VALID\_FROM,

'01-jan-1900'),

NVL (MO.VALID\_FROM,

'01-jan-1900'),

DECODE (

A2MTSA.MTS\_START\_GAS\_DAY,

NULL, TO\_DATE ('01/01/1900',

'dd/mm/yyyy'),

TO\_DATE ('01/01/2009',

'dd/mm/yyyy'), TO\_DATE (

'01/01/2006',

'dd/mm/yyyy'),

A2MTSA.MTS\_START\_GAS\_DAY),

NVL (A2TSM.MEMB\_START\_GAS\_DAY,

'01-jan-1900'))

AND LEAST (

NVL (A2SNH.VALID\_TO,

'31-dec-9999'),

NVL (A2NH.VALID\_TO,

'31-dec-9999'),

NVL (MO.VALID\_TO, '31-dec-9999'),

NVL (A2MTSA.MTS\_END\_GAS\_DAY,

'31-dec-9999'),

NVL (A2TSM.MEMB\_END\_GAS\_DAY,

'31-dec-9999'))),

SUPPLY\_NODE\_MEASUREMENTS

AS (SELECT VNFWD.DERVD\_MEAS\_OBJ\_ID,

VNFWD.GAS\_DAY,

VNFWD.NODE\_TE\_ID,

OA7\_CODIF\_NR,

'VnFwd' PROP\_SYMBOL,

PROP\_FAMILY,

UNIT,

FLOW\_DIRECTION,

SGRID\_CODE,

NODE\_TYPE\_CODE,

NODE\_SUBTYPE\_CODE,

ADJCT\_GAS\_INST\_NAME,

NVL (VNFWD.AMT\_01, 0) - NVL (VNREV.AMT\_01, 0) AS AMT\_01,

NVL (VNFWD.AMT\_02, 0) - NVL (VNREV.AMT\_02, 0) AS AMT\_02,

NVL (VNFWD.AMT\_03, 0) - NVL (VNREV.AMT\_03, 0) AS AMT\_03,

NVL (VNFWD.AMT\_04, 0) - NVL (VNREV.AMT\_04, 0) AS AMT\_04,

NVL (VNFWD.AMT\_05, 0) - NVL (VNREV.AMT\_05, 0) AS AMT\_05,

NVL (VNFWD.AMT\_06, 0) - NVL (VNREV.AMT\_06, 0) AS AMT\_06,

NVL (VNFWD.AMT\_07, 0) - NVL (VNREV.AMT\_07, 0) AS AMT\_07,

NVL (VNFWD.AMT\_08, 0) - NVL (VNREV.AMT\_08, 0) AS AMT\_08,

NVL (VNFWD.AMT\_09, 0) - NVL (VNREV.AMT\_09, 0) AS AMT\_09,

NVL (VNFWD.AMT\_10, 0) - NVL (VNREV.AMT\_10, 0) AS AMT\_10,

NVL (VNFWD.AMT\_11, 0) - NVL (VNREV.AMT\_11, 0) AS AMT\_11,

NVL (VNFWD.AMT\_12, 0) - NVL (VNREV.AMT\_12, 0) AS AMT\_12,

NVL (VNFWD.AMT\_13, 0) - NVL (VNREV.AMT\_13, 0) AS AMT\_13,

NVL (VNFWD.AMT\_14, 0) - NVL (VNREV.AMT\_14, 0) AS AMT\_14,

NVL (VNFWD.AMT\_15, 0) - NVL (VNREV.AMT\_15, 0) AS AMT\_15,

NVL (VNFWD.AMT\_16, 0) - NVL (VNREV.AMT\_16, 0) AS AMT\_16,

NVL (VNFWD.AMT\_17, 0) - NVL (VNREV.AMT\_17, 0) AS AMT\_17,

NVL (VNFWD.AMT\_18, 0) - NVL (VNREV.AMT\_18, 0) AS AMT\_18,

NVL (VNFWD.AMT\_19, 0) - NVL (VNREV.AMT\_19, 0) AS AMT\_19,

NVL (VNFWD.AMT\_20, 0) - NVL (VNREV.AMT\_20, 0) AS AMT\_20,

NVL (VNFWD.AMT\_21, 0) - NVL (VNREV.AMT\_21, 0) AS AMT\_21,

NVL (VNFWD.AMT\_22, 0) - NVL (VNREV.AMT\_22, 0) AS AMT\_22,

NVL (VNFWD.AMT\_23, 0) - NVL (VNREV.AMT\_23, 0) AS AMT\_23,

NVL (VNFWD.AMT\_24, 0) - NVL (VNREV.AMT\_24, 0) AS AMT\_24,

NVL (VNFWD.AMT\_25, 0) - NVL (VNREV.AMT\_25, 0) AS AMT\_25,

STAT\_MIN

FROM (SELECT /\*+ USE\_NL(SND MEAS) \*/

MEAS.DERVD\_MEAS\_OBJ\_ID,

MEAS.GAS\_DAY,

NODE\_TE\_ID,

OA7\_CODIF\_NR,

PROP\_SYMBOL,

PROP\_FAMILY,

UNIT,

FLOW\_DIRECTION,

SGRID\_CODE,

NODE\_TYPE\_CODE,

NODE\_SUBTYPE\_CODE,

ADJCT\_GAS\_INST\_NAME,

NVL (MEAS.AMT\_01, 0) \* SND.H01\_WEIGHT AS AMT\_01,

NVL (MEAS.AMT\_02, 0) \* SND.H02\_WEIGHT AS AMT\_02,

NVL (MEAS.AMT\_03, 0) \* SND.H03\_WEIGHT AS AMT\_03,

NVL (MEAS.AMT\_04, 0) \* SND.H04\_WEIGHT AS AMT\_04,

NVL (MEAS.AMT\_05, 0) \* SND.H05\_WEIGHT AS AMT\_05,

NVL (MEAS.AMT\_06, 0) \* SND.H06\_WEIGHT AS AMT\_06,

NVL (MEAS.AMT\_07, 0) \* SND.H07\_WEIGHT AS AMT\_07,

NVL (MEAS.AMT\_08, 0) \* SND.H08\_WEIGHT AS AMT\_08,

NVL (MEAS.AMT\_09, 0) \* SND.H09\_WEIGHT AS AMT\_09,

NVL (MEAS.AMT\_10, 0) \* SND.H10\_WEIGHT AS AMT\_10,

NVL (MEAS.AMT\_11, 0) \* SND.H11\_WEIGHT AS AMT\_11,

NVL (MEAS.AMT\_12, 0) \* SND.H12\_WEIGHT AS AMT\_12,

NVL (MEAS.AMT\_13, 0) \* SND.H13\_WEIGHT AS AMT\_13,

NVL (MEAS.AMT\_14, 0) \* SND.H14\_WEIGHT AS AMT\_14,

NVL (MEAS.AMT\_15, 0) \* SND.H15\_WEIGHT AS AMT\_15,

NVL (MEAS.AMT\_16, 0) \* SND.H16\_WEIGHT AS AMT\_16,

NVL (MEAS.AMT\_17, 0) \* SND.H17\_WEIGHT AS AMT\_17,

NVL (MEAS.AMT\_18, 0) \* SND.H18\_WEIGHT AS AMT\_18,

NVL (MEAS.AMT\_19, 0) \* SND.H19\_WEIGHT AS AMT\_19,

NVL (MEAS.AMT\_20, 0) \* SND.H20\_WEIGHT AS AMT\_20,

NVL (MEAS.AMT\_21, 0) \* SND.H21\_WEIGHT AS AMT\_21,

NVL (MEAS.AMT\_22, 0) \* SND.H22\_WEIGHT AS AMT\_22,

NVL (MEAS.AMT\_23, 0) \* SND.H23\_WEIGHT AS AMT\_23,

NVL (MEAS.AMT\_24, 0) \* SND.H24\_WEIGHT AS AMT\_24,

NVL (MEAS.AMT\_25, 0) \* SND.H25\_WEIGHT AS AMT\_25,

NVL (

LEAST (

MEAS.STAT\_TYPE\_CODE\_01,

MEAS.STAT\_TYPE\_CODE\_02,

MEAS.STAT\_TYPE\_CODE\_03,

MEAS.STAT\_TYPE\_CODE\_04,

MEAS.STAT\_TYPE\_CODE\_05,

MEAS.STAT\_TYPE\_CODE\_06,

MEAS.STAT\_TYPE\_CODE\_07,

MEAS.STAT\_TYPE\_CODE\_08,

MEAS.STAT\_TYPE\_CODE\_09,

MEAS.STAT\_TYPE\_CODE\_10,

MEAS.STAT\_TYPE\_CODE\_11,

MEAS.STAT\_TYPE\_CODE\_12,

MEAS.STAT\_TYPE\_CODE\_13,

MEAS.STAT\_TYPE\_CODE\_14,

MEAS.STAT\_TYPE\_CODE\_15,

MEAS.STAT\_TYPE\_CODE\_16,

MEAS.STAT\_TYPE\_CODE\_17,

MEAS.STAT\_TYPE\_CODE\_18,

MEAS.STAT\_TYPE\_CODE\_19,

MEAS.STAT\_TYPE\_CODE\_20,

MEAS.STAT\_TYPE\_CODE\_21,

MEAS.STAT\_TYPE\_CODE\_22,

MEAS.STAT\_TYPE\_CODE\_23,

CASE

WHEN (SELECT COUNT (\*)

FROM GAS\_HOUR GH

WHERE GH.GAS\_DAY =

MEAS.GAS\_DAY

AND GH.GAS\_HOUR\_NR =

24) = 1

THEN

MEAS.STAT\_TYPE\_CODE\_24

ELSE

'30'

END,

CASE

WHEN (SELECT COUNT (\*)

FROM GAS\_HOUR GH

WHERE GH.GAS\_DAY = MEAS.GAS\_DAY

AND GH.GAS\_HOUR\_NR = 25) =

1

THEN

MEAS.STAT\_TYPE\_CODE\_25

ELSE

'30'

END),

0)

AS STAT\_MIN

FROM SUPPLY\_NODE\_DEFINITIONS SND

INNER JOIN

DERVD\_MEAS\_LAST MEAS

ON SND.DERVD\_MEAS\_OBJ\_ID =

MEAS.DERVD\_MEAS\_OBJ\_ID

AND SND.GAS\_DAY = MEAS.GAS\_DAY

AND MEAS.GAS\_DAY BETWEEN :B1 AND :B2

WHERE PROP\_SYMBOL = 'VnFwd') VNFWD

LEFT JOIN

(SELECT /\*+ USE\_NL(SND MEAS) \*/

NODE\_TE\_ID,

MEAS.GAS\_DAY,

NVL (MEAS.AMT\_01, 0) \* SND.H01\_WEIGHT AS AMT\_01,

NVL (MEAS.AMT\_02, 0) \* SND.H02\_WEIGHT AS AMT\_02,

NVL (MEAS.AMT\_03, 0) \* SND.H03\_WEIGHT AS AMT\_03,

NVL (MEAS.AMT\_04, 0) \* SND.H04\_WEIGHT AS AMT\_04,

NVL (MEAS.AMT\_05, 0) \* SND.H05\_WEIGHT AS AMT\_05,

NVL (MEAS.AMT\_06, 0) \* SND.H06\_WEIGHT AS AMT\_06,

NVL (MEAS.AMT\_07, 0) \* SND.H07\_WEIGHT AS AMT\_07,

NVL (MEAS.AMT\_08, 0) \* SND.H08\_WEIGHT AS AMT\_08,

NVL (MEAS.AMT\_09, 0) \* SND.H09\_WEIGHT AS AMT\_09,

NVL (MEAS.AMT\_10, 0) \* SND.H10\_WEIGHT AS AMT\_10,

NVL (MEAS.AMT\_11, 0) \* SND.H11\_WEIGHT AS AMT\_11,

NVL (MEAS.AMT\_12, 0) \* SND.H12\_WEIGHT AS AMT\_12,

NVL (MEAS.AMT\_13, 0) \* SND.H13\_WEIGHT AS AMT\_13,

NVL (MEAS.AMT\_14, 0) \* SND.H14\_WEIGHT AS AMT\_14,

NVL (MEAS.AMT\_15, 0) \* SND.H15\_WEIGHT AS AMT\_15,

NVL (MEAS.AMT\_16, 0) \* SND.H16\_WEIGHT AS AMT\_16,

NVL (MEAS.AMT\_17, 0) \* SND.H17\_WEIGHT AS AMT\_17,

NVL (MEAS.AMT\_18, 0) \* SND.H18\_WEIGHT AS AMT\_18,

NVL (MEAS.AMT\_19, 0) \* SND.H19\_WEIGHT AS AMT\_19,

NVL (MEAS.AMT\_20, 0) \* SND.H20\_WEIGHT AS AMT\_20,

NVL (MEAS.AMT\_21, 0) \* SND.H21\_WEIGHT AS AMT\_21,

NVL (MEAS.AMT\_22, 0) \* SND.H22\_WEIGHT AS AMT\_22,

NVL (MEAS.AMT\_23, 0) \* SND.H23\_WEIGHT AS AMT\_23,

NVL (MEAS.AMT\_24, 0) \* SND.H24\_WEIGHT AS AMT\_24,

NVL (MEAS.AMT\_25, 0) \* SND.H25\_WEIGHT AS AMT\_25

FROM SUPPLY\_NODE\_DEFINITIONS SND

INNER JOIN

DERVD\_MEAS\_LAST MEAS

ON SND.DERVD\_MEAS\_OBJ\_ID =

MEAS.DERVD\_MEAS\_OBJ\_ID

AND SND.GAS\_DAY = MEAS.GAS\_DAY

AND MEAS.GAS\_DAY BETWEEN :B1 AND :B2

WHERE PROP\_SYMBOL = 'VnRev') VNREV

ON VNFWD.NODE\_TE\_ID = VNREV.NODE\_TE\_ID

AND VNFWD.GAS\_DAY = VNREV.GAS\_DAY

UNION ALL

SELECT /\*+ USE\_NL(SND MEAS) \*/

EFWD.DERVD\_MEAS\_OBJ\_ID,

EFWD.GAS\_DAY,

EFWD.NODE\_TE\_ID,

OA7\_CODIF\_NR,

'EFwd' PROP\_SYMBOL,

PROP\_FAMILY,

UNIT,

FLOW\_DIRECTION,

SGRID\_CODE,

NODE\_TYPE\_CODE,

NODE\_SUBTYPE\_CODE,

ADJCT\_GAS\_INST\_NAME,

NVL (EFWD.AMT\_01, 0) - NVL (EREV.AMT\_01, 0) AS AMT\_01,

NVL (EFWD.AMT\_02, 0) - NVL (EREV.AMT\_02, 0) AS AMT\_02,

NVL (EFWD.AMT\_03, 0) - NVL (EREV.AMT\_03, 0) AS AMT\_03,

NVL (EFWD.AMT\_04, 0) - NVL (EREV.AMT\_04, 0) AS AMT\_04,

NVL (EFWD.AMT\_05, 0) - NVL (EREV.AMT\_05, 0) AS AMT\_05,

NVL (EFWD.AMT\_06, 0) - NVL (EREV.AMT\_06, 0) AS AMT\_06,

NVL (EFWD.AMT\_07, 0) - NVL (EREV.AMT\_07, 0) AS AMT\_07,

NVL (EFWD.AMT\_08, 0) - NVL (EREV.AMT\_08, 0) AS AMT\_08,

NVL (EFWD.AMT\_09, 0) - NVL (EREV.AMT\_09, 0) AS AMT\_09,

NVL (EFWD.AMT\_10, 0) - NVL (EREV.AMT\_10, 0) AS AMT\_10,

NVL (EFWD.AMT\_11, 0) - NVL (EREV.AMT\_11, 0) AS AMT\_11,

NVL (EFWD.AMT\_12, 0) - NVL (EREV.AMT\_12, 0) AS AMT\_12,

NVL (EFWD.AMT\_13, 0) - NVL (EREV.AMT\_13, 0) AS AMT\_13,

NVL (EFWD.AMT\_14, 0) - NVL (EREV.AMT\_14, 0) AS AMT\_14,

NVL (EFWD.AMT\_15, 0) - NVL (EREV.AMT\_15, 0) AS AMT\_15,

NVL (EFWD.AMT\_16, 0) - NVL (EREV.AMT\_16, 0) AS AMT\_16,

NVL (EFWD.AMT\_17, 0) - NVL (EREV.AMT\_17, 0) AS AMT\_17,

NVL (EFWD.AMT\_18, 0) - NVL (EREV.AMT\_18, 0) AS AMT\_18,

NVL (EFWD.AMT\_19, 0) - NVL (EREV.AMT\_19, 0) AS AMT\_19,

NVL (EFWD.AMT\_20, 0) - NVL (EREV.AMT\_20, 0) AS AMT\_20,

NVL (EFWD.AMT\_21, 0) - NVL (EREV.AMT\_21, 0) AS AMT\_21,

NVL (EFWD.AMT\_22, 0) - NVL (EREV.AMT\_22, 0) AS AMT\_22,

NVL (EFWD.AMT\_23, 0) - NVL (EREV.AMT\_23, 0) AS AMT\_23,

NVL (EFWD.AMT\_24, 0) - NVL (EREV.AMT\_24, 0) AS AMT\_24,

NVL (EFWD.AMT\_25, 0) - NVL (EREV.AMT\_25, 0) AS AMT\_25,

STAT\_MIN

FROM (SELECT /\*+ USE\_NL(SND MEAS) \*/

MEAS.DERVD\_MEAS\_OBJ\_ID,

MEAS.GAS\_DAY,

NODE\_TE\_ID,

OA7\_CODIF\_NR,

PROP\_SYMBOL,

PROP\_FAMILY,

UNIT,

FLOW\_DIRECTION,

SGRID\_CODE,

NODE\_TYPE\_CODE,

NODE\_SUBTYPE\_CODE,

ADJCT\_GAS\_INST\_NAME,

NVL (MEAS.AMT\_01, 0) \* SND.H01\_WEIGHT AS AMT\_01,

NVL (MEAS.AMT\_02, 0) \* SND.H02\_WEIGHT AS AMT\_02,

NVL (MEAS.AMT\_03, 0) \* SND.H03\_WEIGHT AS AMT\_03,

NVL (MEAS.AMT\_04, 0) \* SND.H04\_WEIGHT AS AMT\_04,

NVL (MEAS.AMT\_05, 0) \* SND.H05\_WEIGHT AS AMT\_05,

NVL (MEAS.AMT\_06, 0) \* SND.H06\_WEIGHT AS AMT\_06,

NVL (MEAS.AMT\_07, 0) \* SND.H07\_WEIGHT AS AMT\_07,

NVL (MEAS.AMT\_08, 0) \* SND.H08\_WEIGHT AS AMT\_08,

NVL (MEAS.AMT\_09, 0) \* SND.H09\_WEIGHT AS AMT\_09,

NVL (MEAS.AMT\_10, 0) \* SND.H10\_WEIGHT AS AMT\_10,

NVL (MEAS.AMT\_11, 0) \* SND.H11\_WEIGHT AS AMT\_11,

NVL (MEAS.AMT\_12, 0) \* SND.H12\_WEIGHT AS AMT\_12,

NVL (MEAS.AMT\_13, 0) \* SND.H13\_WEIGHT AS AMT\_13,

NVL (MEAS.AMT\_14, 0) \* SND.H14\_WEIGHT AS AMT\_14,

NVL (MEAS.AMT\_15, 0) \* SND.H15\_WEIGHT AS AMT\_15,

NVL (MEAS.AMT\_16, 0) \* SND.H16\_WEIGHT AS AMT\_16,

NVL (MEAS.AMT\_17, 0) \* SND.H17\_WEIGHT AS AMT\_17,

NVL (MEAS.AMT\_18, 0) \* SND.H18\_WEIGHT AS AMT\_18,

NVL (MEAS.AMT\_19, 0) \* SND.H19\_WEIGHT AS AMT\_19,

NVL (MEAS.AMT\_20, 0) \* SND.H20\_WEIGHT AS AMT\_20,

NVL (MEAS.AMT\_21, 0) \* SND.H21\_WEIGHT AS AMT\_21,

NVL (MEAS.AMT\_22, 0) \* SND.H22\_WEIGHT AS AMT\_22,

NVL (MEAS.AMT\_23, 0) \* SND.H23\_WEIGHT AS AMT\_23,

NVL (MEAS.AMT\_24, 0) \* SND.H24\_WEIGHT AS AMT\_24,

NVL (MEAS.AMT\_25, 0) \* SND.H25\_WEIGHT AS AMT\_25,

NVL (

LEAST (

MEAS.STAT\_TYPE\_CODE\_01,

MEAS.STAT\_TYPE\_CODE\_02,

MEAS.STAT\_TYPE\_CODE\_03,

MEAS.STAT\_TYPE\_CODE\_04,

MEAS.STAT\_TYPE\_CODE\_05,

MEAS.STAT\_TYPE\_CODE\_06,

MEAS.STAT\_TYPE\_CODE\_07,

MEAS.STAT\_TYPE\_CODE\_08,

MEAS.STAT\_TYPE\_CODE\_09,

MEAS.STAT\_TYPE\_CODE\_10,

MEAS.STAT\_TYPE\_CODE\_11,

MEAS.STAT\_TYPE\_CODE\_12,

MEAS.STAT\_TYPE\_CODE\_13,

MEAS.STAT\_TYPE\_CODE\_14,

MEAS.STAT\_TYPE\_CODE\_15,

MEAS.STAT\_TYPE\_CODE\_16,

MEAS.STAT\_TYPE\_CODE\_17,

MEAS.STAT\_TYPE\_CODE\_18,

MEAS.STAT\_TYPE\_CODE\_19,

MEAS.STAT\_TYPE\_CODE\_20,

MEAS.STAT\_TYPE\_CODE\_21,

MEAS.STAT\_TYPE\_CODE\_22,

MEAS.STAT\_TYPE\_CODE\_23,

CASE

WHEN (SELECT COUNT (\*)

FROM GAS\_HOUR GH

WHERE GH.GAS\_DAY =

MEAS.GAS\_DAY

AND GH.GAS\_HOUR\_NR =

24) = 1

THEN

MEAS.STAT\_TYPE\_CODE\_24

ELSE

'30'

END,

CASE

WHEN (SELECT COUNT (\*)

FROM GAS\_HOUR GH

WHERE GH.GAS\_DAY = MEAS.GAS\_DAY

AND GH.GAS\_HOUR\_NR = 25) =

1

THEN

MEAS.STAT\_TYPE\_CODE\_25

ELSE

'30'

END),

0)

AS STAT\_MIN

FROM SUPPLY\_NODE\_DEFINITIONS SND

INNER JOIN

DERVD\_MEAS\_LAST MEAS

ON SND.DERVD\_MEAS\_OBJ\_ID =

MEAS.DERVD\_MEAS\_OBJ\_ID

AND SND.GAS\_DAY = MEAS.GAS\_DAY

AND MEAS.GAS\_DAY BETWEEN :B1 AND :B2

WHERE PROP\_SYMBOL = 'EFwd') EFWD

LEFT JOIN

(SELECT /\*+ USE\_NL(SND MEAS) \*/

NODE\_TE\_ID,

MEAS.GAS\_DAY,

NVL (MEAS.AMT\_01, 0) \* SND.H01\_WEIGHT AS AMT\_01,

NVL (MEAS.AMT\_02, 0) \* SND.H02\_WEIGHT AS AMT\_02,

NVL (MEAS.AMT\_03, 0) \* SND.H03\_WEIGHT AS AMT\_03,

NVL (MEAS.AMT\_04, 0) \* SND.H04\_WEIGHT AS AMT\_04,

NVL (MEAS.AMT\_05, 0) \* SND.H05\_WEIGHT AS AMT\_05,

NVL (MEAS.AMT\_06, 0) \* SND.H06\_WEIGHT AS AMT\_06,

NVL (MEAS.AMT\_07, 0) \* SND.H07\_WEIGHT AS AMT\_07,

NVL (MEAS.AMT\_08, 0) \* SND.H08\_WEIGHT AS AMT\_08,

NVL (MEAS.AMT\_09, 0) \* SND.H09\_WEIGHT AS AMT\_09,

NVL (MEAS.AMT\_10, 0) \* SND.H10\_WEIGHT AS AMT\_10,

NVL (MEAS.AMT\_11, 0) \* SND.H11\_WEIGHT AS AMT\_11,

NVL (MEAS.AMT\_12, 0) \* SND.H12\_WEIGHT AS AMT\_12,

NVL (MEAS.AMT\_13, 0) \* SND.H13\_WEIGHT AS AMT\_13,

NVL (MEAS.AMT\_14, 0) \* SND.H14\_WEIGHT AS AMT\_14,

NVL (MEAS.AMT\_15, 0) \* SND.H15\_WEIGHT AS AMT\_15,

NVL (MEAS.AMT\_16, 0) \* SND.H16\_WEIGHT AS AMT\_16,

NVL (MEAS.AMT\_17, 0) \* SND.H17\_WEIGHT AS AMT\_17,

NVL (MEAS.AMT\_18, 0) \* SND.H18\_WEIGHT AS AMT\_18,

NVL (MEAS.AMT\_19, 0) \* SND.H19\_WEIGHT AS AMT\_19,

NVL (MEAS.AMT\_20, 0) \* SND.H20\_WEIGHT AS AMT\_20,

NVL (MEAS.AMT\_21, 0) \* SND.H21\_WEIGHT AS AMT\_21,

NVL (MEAS.AMT\_22, 0) \* SND.H22\_WEIGHT AS AMT\_22,

NVL (MEAS.AMT\_23, 0) \* SND.H23\_WEIGHT AS AMT\_23,

NVL (MEAS.AMT\_24, 0) \* SND.H24\_WEIGHT AS AMT\_24,

NVL (MEAS.AMT\_25, 0) \* SND.H25\_WEIGHT AS AMT\_25

FROM SUPPLY\_NODE\_DEFINITIONS SND

INNER JOIN

DERVD\_MEAS\_LAST MEAS

ON SND.DERVD\_MEAS\_OBJ\_ID =

MEAS.DERVD\_MEAS\_OBJ\_ID

AND SND.GAS\_DAY = MEAS.GAS\_DAY

AND MEAS.GAS\_DAY BETWEEN :B1 AND :B2

WHERE PROP\_SYMBOL = 'ERev') EREV

ON EFWD.NODE\_TE\_ID = EREV.NODE\_TE\_ID

AND EFWD.GAS\_DAY = EREV.GAS\_DAY),

BORDER\_NODE\_MEASUREMENTS

AS (SELECT /\*+ USE\_NL(BND MEAS) \*/

MEAS.DERVD\_MEAS\_OBJ\_ID,

MEAS.GAS\_DAY,

NODE\_TE\_ID,

OA7\_CODIF\_NR,

PROP\_SYMBOL,

PROP\_FAMILY,

UNIT,

FLOW\_DIRECTION,

SGRID\_CODE,

NODE\_TYPE\_CODE,

NODE\_SUBTYPE\_CODE,

ADJCT\_GAS\_INST\_NAME,

NVL (MEAS.AMT\_01, 0) \* BND.H01\_WEIGHT AS AMT\_01,

NVL (MEAS.AMT\_02, 0) \* BND.H02\_WEIGHT AS AMT\_02,

NVL (MEAS.AMT\_03, 0) \* BND.H03\_WEIGHT AS AMT\_03,

NVL (MEAS.AMT\_04, 0) \* BND.H04\_WEIGHT AS AMT\_04,

NVL (MEAS.AMT\_05, 0) \* BND.H05\_WEIGHT AS AMT\_05,

NVL (MEAS.AMT\_06, 0) \* BND.H06\_WEIGHT AS AMT\_06,

NVL (MEAS.AMT\_07, 0) \* BND.H07\_WEIGHT AS AMT\_07,

NVL (MEAS.AMT\_08, 0) \* BND.H08\_WEIGHT AS AMT\_08,

NVL (MEAS.AMT\_09, 0) \* BND.H09\_WEIGHT AS AMT\_09,

NVL (MEAS.AMT\_10, 0) \* BND.H10\_WEIGHT AS AMT\_10,

NVL (MEAS.AMT\_11, 0) \* BND.H11\_WEIGHT AS AMT\_11,

NVL (MEAS.AMT\_12, 0) \* BND.H12\_WEIGHT AS AMT\_12,

NVL (MEAS.AMT\_13, 0) \* BND.H13\_WEIGHT AS AMT\_13,

NVL (MEAS.AMT\_14, 0) \* BND.H14\_WEIGHT AS AMT\_14,

NVL (MEAS.AMT\_15, 0) \* BND.H15\_WEIGHT AS AMT\_15,

NVL (MEAS.AMT\_16, 0) \* BND.H16\_WEIGHT AS AMT\_16,

NVL (MEAS.AMT\_17, 0) \* BND.H17\_WEIGHT AS AMT\_17,

NVL (MEAS.AMT\_18, 0) \* BND.H18\_WEIGHT AS AMT\_18,

NVL (MEAS.AMT\_19, 0) \* BND.H19\_WEIGHT AS AMT\_19,

NVL (MEAS.AMT\_20, 0) \* BND.H20\_WEIGHT AS AMT\_20,

NVL (MEAS.AMT\_21, 0) \* BND.H21\_WEIGHT AS AMT\_21,

NVL (MEAS.AMT\_22, 0) \* BND.H22\_WEIGHT AS AMT\_22,

NVL (MEAS.AMT\_23, 0) \* BND.H23\_WEIGHT AS AMT\_23,

NVL (MEAS.AMT\_24, 0) \* BND.H24\_WEIGHT AS AMT\_24,

NVL (MEAS.AMT\_25, 0) \* BND.H25\_WEIGHT AS AMT\_25,

NVL (

LEAST (

MEAS.STAT\_TYPE\_CODE\_01,

MEAS.STAT\_TYPE\_CODE\_02,

MEAS.STAT\_TYPE\_CODE\_03,

MEAS.STAT\_TYPE\_CODE\_04,

MEAS.STAT\_TYPE\_CODE\_05,

MEAS.STAT\_TYPE\_CODE\_06,

MEAS.STAT\_TYPE\_CODE\_07,

MEAS.STAT\_TYPE\_CODE\_08,

MEAS.STAT\_TYPE\_CODE\_09,

MEAS.STAT\_TYPE\_CODE\_10,

MEAS.STAT\_TYPE\_CODE\_11,

MEAS.STAT\_TYPE\_CODE\_12,

MEAS.STAT\_TYPE\_CODE\_13,

MEAS.STAT\_TYPE\_CODE\_14,

MEAS.STAT\_TYPE\_CODE\_15,

MEAS.STAT\_TYPE\_CODE\_16,

MEAS.STAT\_TYPE\_CODE\_17,

MEAS.STAT\_TYPE\_CODE\_18,

MEAS.STAT\_TYPE\_CODE\_19,

MEAS.STAT\_TYPE\_CODE\_20,

MEAS.STAT\_TYPE\_CODE\_21,

MEAS.STAT\_TYPE\_CODE\_22,

MEAS.STAT\_TYPE\_CODE\_23,

CASE

WHEN (SELECT COUNT (\*)

FROM GAS\_HOUR GH

WHERE GH.GAS\_DAY = MEAS.GAS\_DAY

AND GH.GAS\_HOUR\_NR = 24) = 1

THEN

MEAS.STAT\_TYPE\_CODE\_24

ELSE

'30'

END,

CASE

WHEN (SELECT COUNT (\*)

FROM GAS\_HOUR GH

WHERE GH.GAS\_DAY = MEAS.GAS\_DAY

AND GH.GAS\_HOUR\_NR = 25) = 1

THEN

MEAS.STAT\_TYPE\_CODE\_25

ELSE

'30'

END),

0)

AS STAT\_MIN

FROM BORDER\_NODE\_DEFINITIONS BND

INNER JOIN

DERVD\_MEAS\_LAST MEAS

ON BND.DERVD\_MEAS\_OBJ\_ID = MEAS.DERVD\_MEAS\_OBJ\_ID

AND BND.GAS\_DAY = MEAS.GAS\_DAY

AND MEAS.GAS\_DAY BETWEEN :B1 AND :B2)

SELECT SNM.NODE\_TE\_ID AS TE\_ID,

OA7\_CODIF\_NR AS OA7\_CODIF\_NR,

PROP\_SYMBOL AS PROP\_SYMBOL,

PROP\_FAMILY AS PROP\_FAMILY,

LAST\_NODE\_NAME AS TE\_NAME,

SECTORS.REGR\_NAME AS NODE\_SECTOR,

NODE\_TYPE\_CODE AS GROUP\_ON\_REPORT,

NODE\_TYPE\_CODE AS NODE\_TYPE\_CODE,

NODE\_SUBTYPE\_CODE AS NODE\_SUBTYPE\_CODE,

ADJCT\_GAS\_INST\_NAME AS ADJCT\_GAS\_INST\_NAME,

FLOW\_DIRECTION AS GAS\_FLOW\_DIR,

SGRID\_CODE AS SGRID\_CODE,

CAST (TO\_CHAR (SNM.GAS\_DAY, 'YYYY') AS INTEGER) AS GAS\_YEAR,

CAST (TO\_CHAR (SNM.GAS\_DAY, 'MM') AS INTEGER) AS GAS\_MONTH\_NR,

ROUND (

SUM (

AMT\_01

+ AMT\_02

+ AMT\_03

+ AMT\_04

+ AMT\_05

+ AMT\_06

+ AMT\_07

+ AMT\_08

+ AMT\_09

+ AMT\_10

+ AMT\_11

+ AMT\_12

+ AMT\_13

+ AMT\_14

+ AMT\_15

+ AMT\_16

+ AMT\_17

+ AMT\_18

+ AMT\_19

+ AMT\_20

+ AMT\_21

+ AMT\_22

+ AMT\_23

+ AMT\_24

+ AMT\_25),

2)

AS AMT,

UNIT AS UNIT,

MIN (STAT\_MIN) AS STAT\_MIN

FROM SUPPLY\_NODE\_MEASUREMENTS SNM

INNER JOIN LAST\_NAME LN

ON SNM.NODE\_TE\_ID = LN.NODE\_TE\_ID

LEFT JOIN SECTORS

ON SNM.NODE\_TE\_ID = SECTORS.TE\_ID

AND CAST (TO\_CHAR (SNM.GAS\_DAY, 'YYYY') AS INTEGER) \* 100

+ CAST (TO\_CHAR (SNM.GAS\_DAY, 'MM') AS INTEGER) BETWEEN SECTORS.

YEAR\_MONTH\_VALID\_FROM

AND SECTORS.

YEAR\_MONTH\_VALID\_TO

GROUP BY SNM.NODE\_TE\_ID,

OA7\_CODIF\_NR,

PROP\_SYMBOL,

PROP\_FAMILY,

LAST\_NODE\_NAME,

REGR\_NAME,

NODE\_TYPE\_CODE,

NODE\_TYPE\_CODE,

NODE\_SUBTYPE\_CODE,

ADJCT\_GAS\_INST\_NAME,

FLOW\_DIRECTION,

SGRID\_CODE,

CAST (TO\_CHAR (SNM.GAS\_DAY, 'YYYY') AS INTEGER),

CAST (TO\_CHAR (SNM.GAS\_DAY, 'MM') AS INTEGER),

UNIT

UNION ALL

SELECT BNM.NODE\_TE\_ID AS TE\_ID,

OA7\_CODIF\_NR AS OA7\_CODIF\_NR,

PROP\_SYMBOL AS PROP\_SYMBOL,

PROP\_FAMILY AS PROP\_FAMILY,

LAST\_NODE\_NAME AS TE\_NAME,

NULL AS NODE\_SECTOR,

NODE\_TYPE\_CODE AS GROUP\_ON\_REPORT,

NODE\_TYPE\_CODE AS NODE\_TYPE\_CODE,

NODE\_SUBTYPE\_CODE AS NODE\_SUBTYPE\_CODE,

ADJCT\_GAS\_INST\_NAME AS ADJCT\_GAS\_INST\_NAME,

FLOW\_DIRECTION AS GAS\_FLOW\_DIR,

SGRID\_CODE AS SGRID\_CODE,

CAST (TO\_CHAR (BNM.GAS\_DAY, 'YYYY') AS INTEGER) AS GAS\_YEAR,

CAST (TO\_CHAR (BNM.GAS\_DAY, 'MM') AS INTEGER) AS GAS\_MONTH\_NR,

ROUND (

SUM (

AMT\_01

+ AMT\_02

+ AMT\_03

+ AMT\_04

+ AMT\_05

+ AMT\_06

+ AMT\_07

+ AMT\_08

+ AMT\_09

+ AMT\_10

+ AMT\_11

+ AMT\_12

+ AMT\_13

+ AMT\_14

+ AMT\_15

+ AMT\_16

+ AMT\_17

+ AMT\_18

+ AMT\_19

+ AMT\_20

+ AMT\_21

+ AMT\_22

+ AMT\_23

+ AMT\_24

+ AMT\_25),

2)

AS AMT,

UNIT AS UNIT,

MIN (STAT\_MIN) AS STAT\_MIN

FROM BORDER\_NODE\_MEASUREMENTS BNM

INNER JOIN

LAST\_NAME LN

ON BNM.NODE\_TE\_ID = LN.NODE\_TE\_ID

GROUP BY BNM.NODE\_TE\_ID,

OA7\_CODIF\_NR,

PROP\_SYMBOL,

PROP\_FAMILY,

LAST\_NODE\_NAME,

NULL,

NODE\_TYPE\_CODE,

NODE\_TYPE\_CODE,

NODE\_SUBTYPE\_CODE,

ADJCT\_GAS\_INST\_NAME,

FLOW\_DIRECTION,

SGRID\_CODE,

CAST (TO\_CHAR (BNM.GAS\_DAY, 'YYYY') AS INTEGER),

CAST (TO\_CHAR (BNM.GAS\_DAY, 'MM') AS INTEGER),

UNIT

UNION ALL

SELECT MTS\_TE\_ID AS TE\_ID,

'' AS OA7\_CODIF\_NR,

MO.PROP\_SYMBOL AS PROP\_SYMBOL,

PCK\_REPORTING.GET\_PROP\_FAMILY (MO.PROP\_SYMBOL) AS PROP\_FAMILY,

MAX (MTS\_NAME) AS TE\_NAME,

NULL AS NODE\_SECTOR,

'LINEPACK' AS GROUP\_ON\_REPORT,

'LINEPACK' AS NODE\_TYPE\_CODE,

'LINEPACK' AS NODE\_SUB\_TYPE\_CODE,

'' AS ADJCT\_GAS\_INST\_NAME,

PCK\_REPORTING.GET\_FLOW\_DIRECTION ('LINEPACK',

NULL,

NULL,

NULL)

AS GAS\_FLOW\_DIR,

SGRID\_CODE AS SGRID\_CODE,

CAST (TO\_CHAR (MEAS.GAS\_DAY, 'YYYY') AS INTEGER) AS GAS\_YEAR,

CAST (TO\_CHAR (MEAS.GAS\_DAY, 'MM') AS INTEGER) AS GAS\_MONTH\_NR,

ROUND (

SUM (

COALESCE (MEAS.AMT\_25,

MEAS.AMT\_24,

MEAS.AMT\_23,

MEAS.AMT\_22,

MEAS.AMT\_21,

MEAS.AMT\_20,

MEAS.AMT\_19,

MEAS.AMT\_18,

MEAS.AMT\_17,

MEAS.AMT\_16,

MEAS.AMT\_15,

MEAS.AMT\_14,

MEAS.AMT\_13,

MEAS.AMT\_12,

MEAS.AMT\_11,

MEAS.AMT\_10,

MEAS.AMT\_09,

MEAS.AMT\_08,

MEAS.AMT\_07,

MEAS.AMT\_06,

MEAS.AMT\_05,

MEAS.AMT\_04,

MEAS.AMT\_03,

MEAS.AMT\_02,

MEAS.AMT\_01,

0)

- (SELECT COALESCE (YTD.AMT\_25,

YTD.AMT\_24,

YTD.AMT\_23,

0)

FROM DERVD\_MEAS\_LAST YTD

WHERE MEAS.DERVD\_MEAS\_OBJ\_ID = YTD.DERVD\_MEAS\_OBJ\_ID

AND MEAS.GAS\_DAY = (YTD.GAS\_DAY + 1))),

2)

AS AMT,

PCK\_REPORTING.GET\_UNIT (MO.PROP\_SYMBOL) AS UNIT,

MIN (

NVL (

LEAST (

MEAS.STAT\_TYPE\_CODE\_01,

MEAS.STAT\_TYPE\_CODE\_02,

MEAS.STAT\_TYPE\_CODE\_03,

MEAS.STAT\_TYPE\_CODE\_04,

MEAS.STAT\_TYPE\_CODE\_05,

MEAS.STAT\_TYPE\_CODE\_06,

MEAS.STAT\_TYPE\_CODE\_07,

MEAS.STAT\_TYPE\_CODE\_08,

MEAS.STAT\_TYPE\_CODE\_09,

MEAS.STAT\_TYPE\_CODE\_10,

MEAS.STAT\_TYPE\_CODE\_11,

MEAS.STAT\_TYPE\_CODE\_12,

MEAS.STAT\_TYPE\_CODE\_13,

MEAS.STAT\_TYPE\_CODE\_14,

MEAS.STAT\_TYPE\_CODE\_15,

MEAS.STAT\_TYPE\_CODE\_16,

MEAS.STAT\_TYPE\_CODE\_17,

MEAS.STAT\_TYPE\_CODE\_18,

MEAS.STAT\_TYPE\_CODE\_19,

MEAS.STAT\_TYPE\_CODE\_20,

MEAS.STAT\_TYPE\_CODE\_21,

MEAS.STAT\_TYPE\_CODE\_22,

MEAS.STAT\_TYPE\_CODE\_23,

CASE

WHEN (SELECT COUNT (\*)

FROM GAS\_HOUR GH

WHERE GH.GAS\_DAY = MEAS.GAS\_DAY

AND GH.GAS\_HOUR\_NR = 24) = 1

THEN

MEAS.STAT\_TYPE\_CODE\_24

ELSE

'30'

END,

CASE

WHEN (SELECT COUNT (\*)

FROM GAS\_HOUR GH

WHERE GH.GAS\_DAY = MEAS.GAS\_DAY

AND GH.GAS\_HOUR\_NR = 25) = 1

THEN

MEAS.STAT\_TYPE\_CODE\_25

ELSE

'30'

END),

0))

AS STAT\_MIN

FROM A2\_MTS

INNER JOIN A2\_SGRID

ON (A2\_MTS.SGRID\_TE\_ID = A2\_SGRID.SGRID\_TE\_ID)

INNER JOIN A2\_GAS\_INST FLX

ON (A2\_SGRID.TRANSP\_GRID\_TE\_ID = FLX.GAS\_INST\_TE\_ID

AND FLX.GAS\_INST\_NAME = 'Grid Fluxys')

INNER JOIN MIS\_DERVD\_MEAS\_OBJ\_V\_HIS MO

ON (A2\_MTS.MTS\_TE\_ID = MO.TE\_ID)

INNER JOIN DERVD\_MEAS\_LAST MEAS

ON (MO.DERVD\_MEAS\_OBJ\_ID = MEAS.DERVD\_MEAS\_OBJ\_ID)

WHERE MO.PROP\_SYMBOL IN ('ELinepack', 'VnLinepack')

AND MO.MEAS\_OBJ\_FLG\_ACTIVE = 1

AND MO.VALID\_FROM <= :B2

AND MO.VALID\_TO >= :B1

AND MEAS.GAS\_DAY BETWEEN :B1 AND :B2

AND MEAS.GAS\_DAY BETWEEN MO.VALID\_FROM AND MO.VALID\_TO

GROUP BY MTS\_TE\_ID,

'',

MO.PROP\_SYMBOL,

PCK\_REPORTING.GET\_PROP\_FAMILY (MO.PROP\_SYMBOL),

NULL,

'LINEPACK',

'LINEPACK',

'LINEPACK',

'',

PCK\_REPORTING.GET\_FLOW\_DIRECTION ('LINEPACK',

NULL,

NULL,

NULL),

SGRID\_CODE,

CAST (TO\_CHAR (MEAS.GAS\_DAY, 'YYYY') AS INTEGER),

CAST (TO\_CHAR (MEAS.GAS\_DAY, 'MM') AS INTEGER),

PCK\_REPORTING.GET\_UNIT (MO.PROP\_SYMBOL)

The query plan change can be seen in Enterprise Manager while looking at the query activity. It mentions that there are multiple plans found for the query.



In this case we see that on 10/03/2015 at 6:10 am the query had a good plan



But on 10/03/2015 at 6:25 am the execution plan had changed and query kept running for hours.



# Check statistics

First thing to do is to check for stale statistics.

The query is using one big table DERVD\_MEAS\_LAST several times in the query

select table\_name,partition\_name,stale\_stats from dba\_tab\_statistics

where table\_name = 'DERVD\_MEAS\_LAST'

order by partition\_name

TABLE\_NAME PARTITION\_NAME STA

------------------------------ ------------------------------ ---

DERVD\_MEAS\_LAST MISTRAL\_2013\_01 NO

DERVD\_MEAS\_LAST MISTRAL\_2013\_02 NO

DERVD\_MEAS\_LAST MISTRAL\_2013\_03 NO

DERVD\_MEAS\_LAST MISTRAL\_2013\_04 NO

DERVD\_MEAS\_LAST MISTRAL\_2013\_05 NO

DERVD\_MEAS\_LAST MISTRAL\_2013\_06 NO

DERVD\_MEAS\_LAST MISTRAL\_2013\_07 NO

DERVD\_MEAS\_LAST MISTRAL\_2013\_08 NO

DERVD\_MEAS\_LAST MISTRAL\_2013\_09 NO

DERVD\_MEAS\_LAST MISTRAL\_2013\_10 NO

DERVD\_MEAS\_LAST MISTRAL\_2013\_11 NO

DERVD\_MEAS\_LAST MISTRAL\_2013\_12 NO

DERVD\_MEAS\_LAST MISTRAL\_2014\_01 NO

DERVD\_MEAS\_LAST MISTRAL\_2014\_02 NO

DERVD\_MEAS\_LAST MISTRAL\_2014\_03 NO

DERVD\_MEAS\_LAST MISTRAL\_2014\_04 NO

DERVD\_MEAS\_LAST MISTRAL\_2014\_05 NO

DERVD\_MEAS\_LAST MISTRAL\_2014\_06 NO

DERVD\_MEAS\_LAST MISTRAL\_2014\_07 NO

DERVD\_MEAS\_LAST MISTRAL\_2014\_08 NO

DERVD\_MEAS\_LAST MISTRAL\_2014\_09 NO

DERVD\_MEAS\_LAST MISTRAL\_2014\_10 NO

DERVD\_MEAS\_LAST MISTRAL\_2014\_11 NO

DERVD\_MEAS\_LAST MISTRAL\_2014\_12 NO

DERVD\_MEAS\_LAST MISTRAL\_2015\_01 NO

DERVD\_MEAS\_LAST MISTRAL\_2015\_02 NO

DERVD\_MEAS\_LAST MISTRAL\_2015\_03 YES

DERVD\_MEAS\_LAST MISTRAL\_2015\_04 NO

DERVD\_MEAS\_LAST MISTRAL\_2015\_05 NO

DERVD\_MEAS\_LAST MISTRAL\_2015\_06 NO

DERVD\_MEAS\_LAST MISTRAL\_2015\_07 NO

DERVD\_MEAS\_LAST MISTRAL\_2015\_08 NO

DERVD\_MEAS\_LAST MISTRAL\_2015\_09 NO

DERVD\_MEAS\_LAST MISTRAL\_2015\_10 NO

DERVD\_MEAS\_LAST MISTRAL\_2015\_11 NO

DERVD\_MEAS\_LAST MISTRAL\_2015\_12 NO

DERVD\_MEAS\_LAST MISTRAL\_BEFORE NO

DERVD\_MEAS\_LAST MISTRAL\_OTHER NO

DERVD\_MEAS\_LAST YES

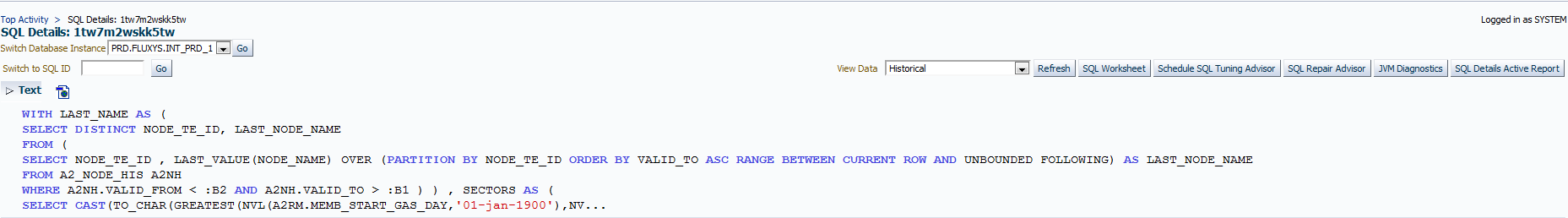
Here we see that partition MISTRAL\_2015\_03 has stale statistics and also the global statistics for the table are stale.

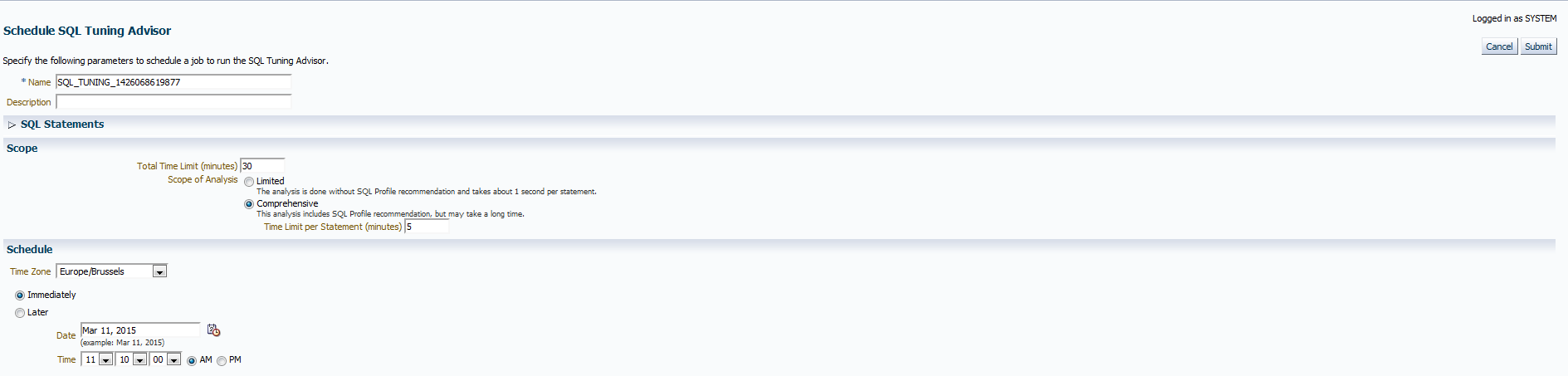
So first, we will make sure that the statistics are up to date.

execute DBMS\_STATS.GATHER\_TABLE\_STATS(‘MISTRAL’,’DERVD\_MEAS\_LAST’);

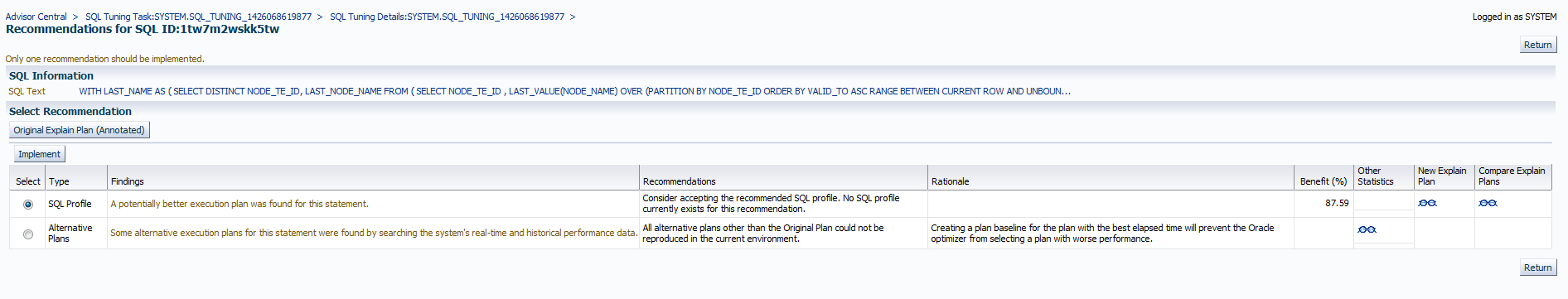
This actually did not help in making this query more performant. Seen the complexity of this query, I decided to have a look at what SQL Tuning Advisor says about this query.

# Running SQL Tuning Advisor

****

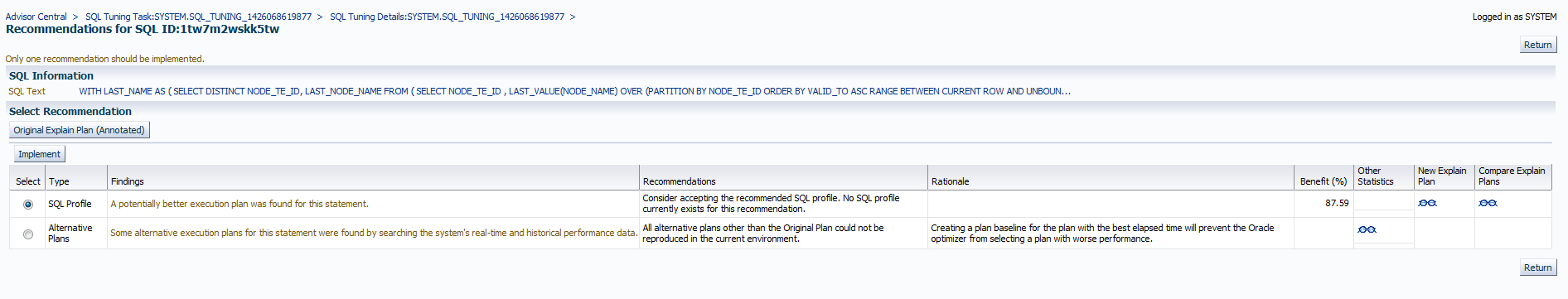


Click on Submit



So now we see that the SQL Tuning Advisor has found a better execution plan by implementing an SQL Profile. The benefit in this case could be 87%.

# Implementing the SQL Profile



Click on Implement



Click Yes

So from now on as long as the sql text does not change, this query should always use the same plan.

The query now runs in less than 15 minutes.

# Check the SQL Profile is used

select name from dba\_sql\_profiles where sql\_text like '%LAST\_NAME%';

NAME

------------------------------

SYS\_SQLPROF\_024c086cb2b90006

select last\_load\_time from v$sql where sql\_profile='SYS\_SQLPROF\_024c086cb2b90006';

LAST\_LOAD\_TIME

-------------------

2015-03-11/12:40:38