



Social Welfare Report

01-12 / 2013

January 2013



- ▶ Additional Social welfare that could be gained with no network constraints:

14,7 M€

Social welfare = Producer surplus + Consumer surplus + Congestion rent

Producer surplus	60 M€
Consumer surplus	-13,6 M€
Congestion Rent	-31,7 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily (Value with $ATC=\infty$) - (Historical value)

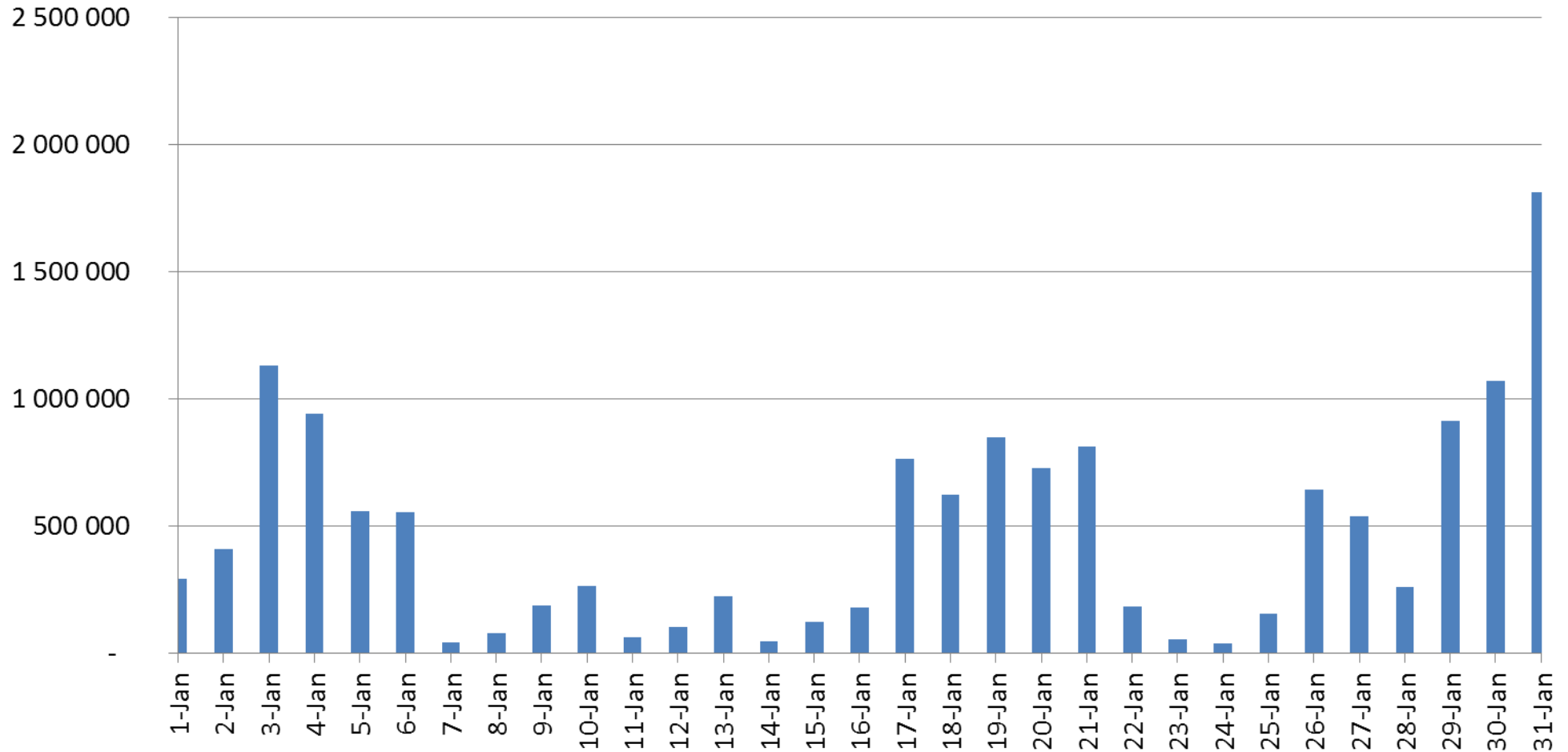
The daily values being a Sum of hourly values.

In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.

January 2013



Evolution of social welfare that could be gained with no network constraints



February 2013



- ▶ Additional Social welfare that could be gained with no network constraints:

14,7 M€

Social welfare = Producer surplus + Consumer surplus + Congestion rent

Producer surplus	76 M€
Consumer surplus	-30,3 M€
Congestion Rent	-31 M€

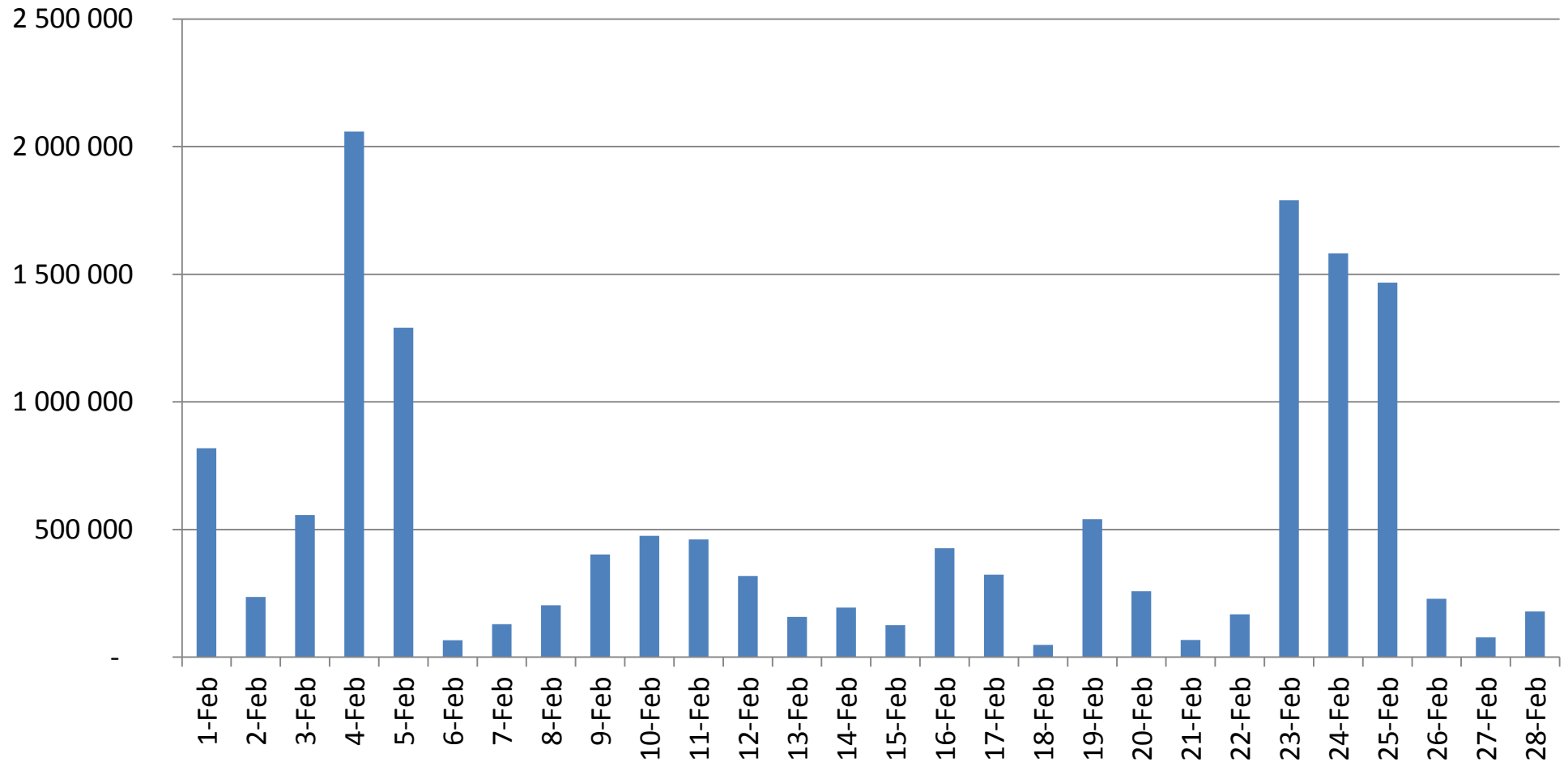
*NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:
Sum of daily (Value with $ATC=\infty$) - (Historical value)
The daily values being a Sum of hourly values.*

In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.

February 2013



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

38,8 M€

Social welfare = Producer surplus + Consumer surplus + Congestion rent

Producer surplus	199,7 M€
Consumer surplus	-97,5 M€
Congestion Rent	-63,9 M€

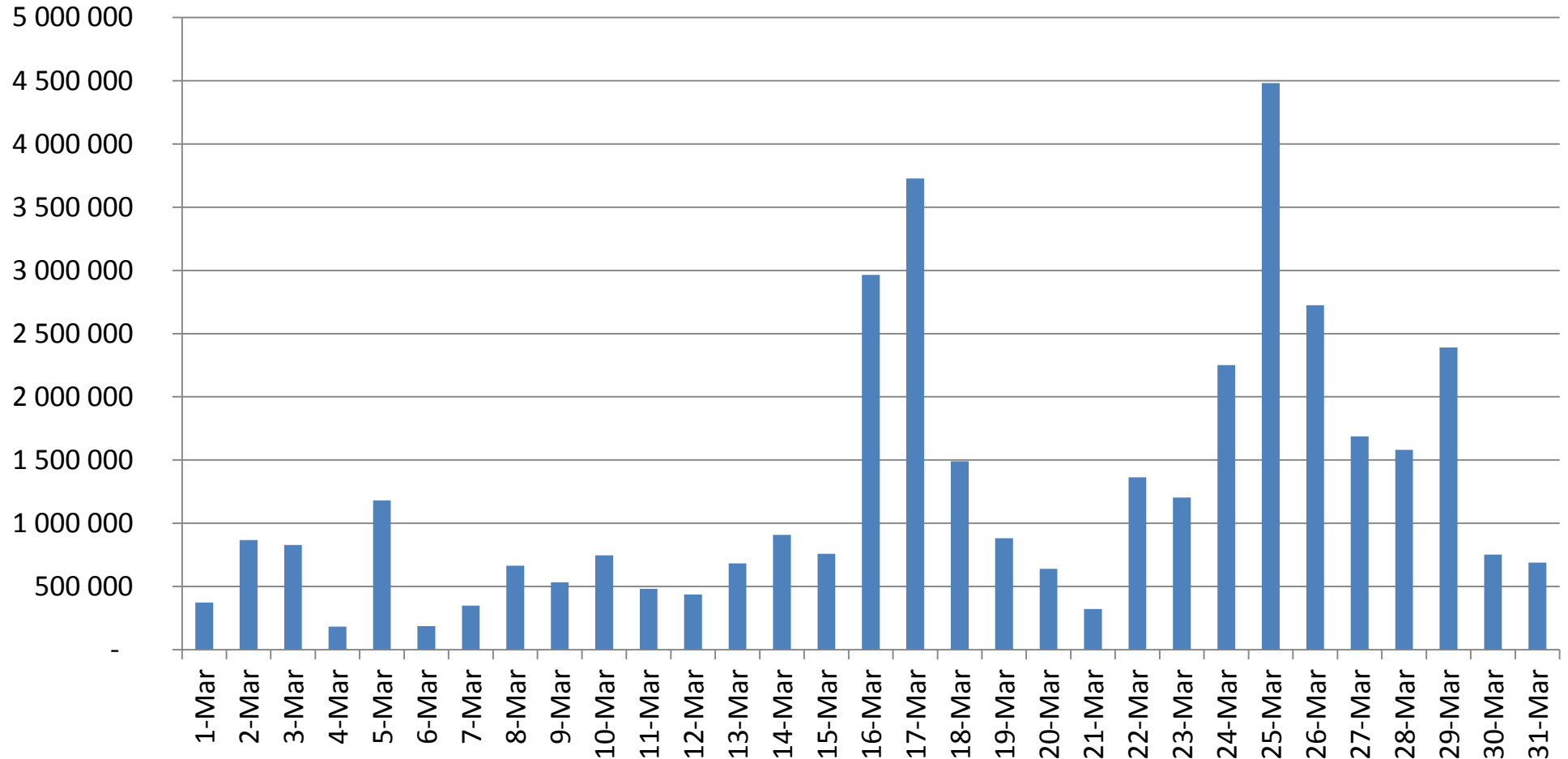
*NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:
Sum of daily (Value with $ATC=\infty$) - (Historical value)
The daily values being a Sum of hourly values.*

In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.

March 2013



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

27,6 M€

Social welfare = Producer surplus + Consumer surplus + Congestion rent

Producer surplus	109,0 M€
Consumer surplus	-27,7 M€
Congestion Rent	-53,7 M€

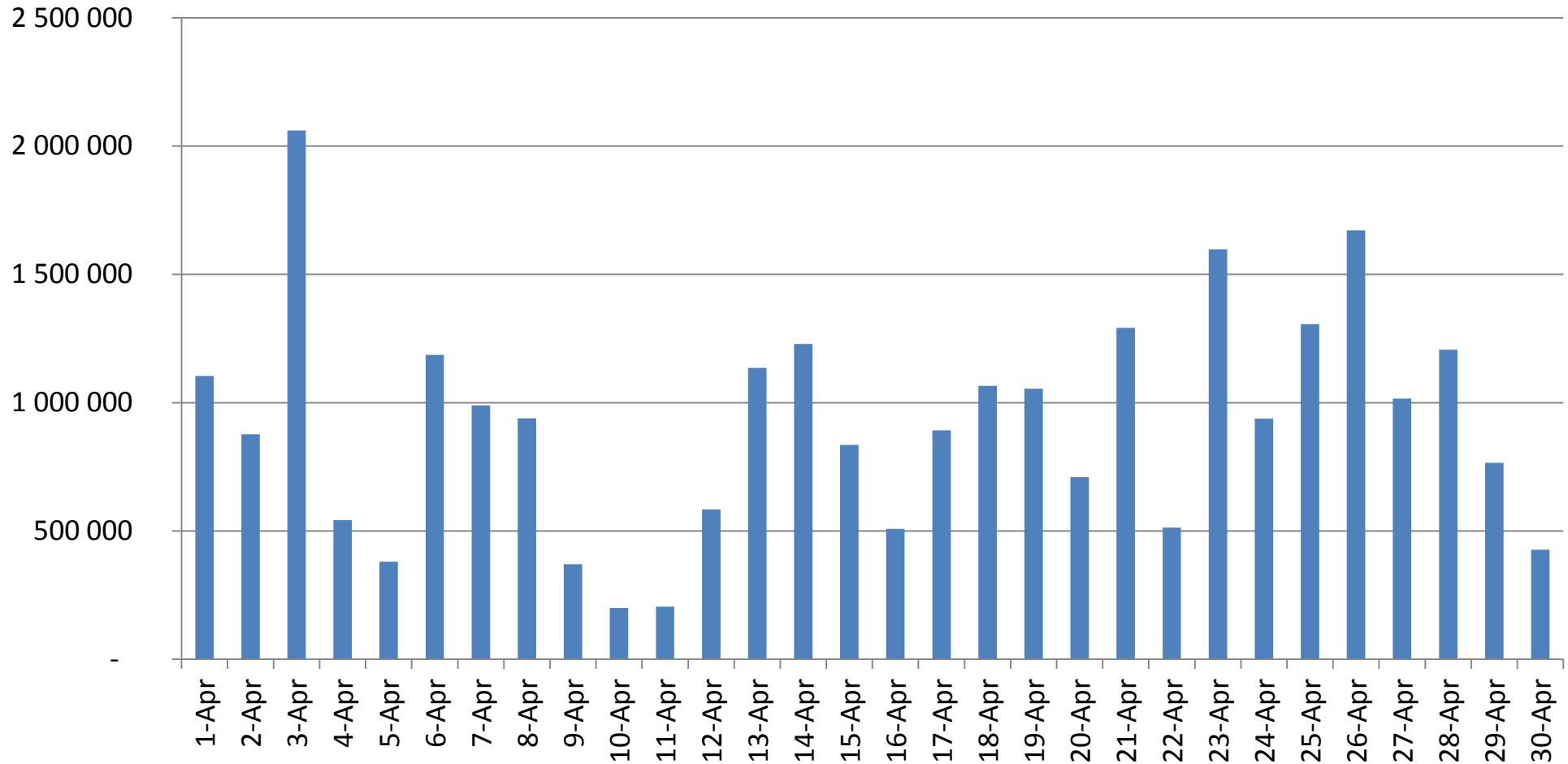
*NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:
Sum of daily (Value with $ATC=\infty$) - (Historical value)
The daily values being a Sum of hourly values.*

In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.

April 2013



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

28,0 M€

Social welfare = Producer surplus + Consumer surplus + Congestion rent

Producer surplus	77,0 M€
Consumer surplus	7,3 M€
Congestion Rent	-56,3 M€

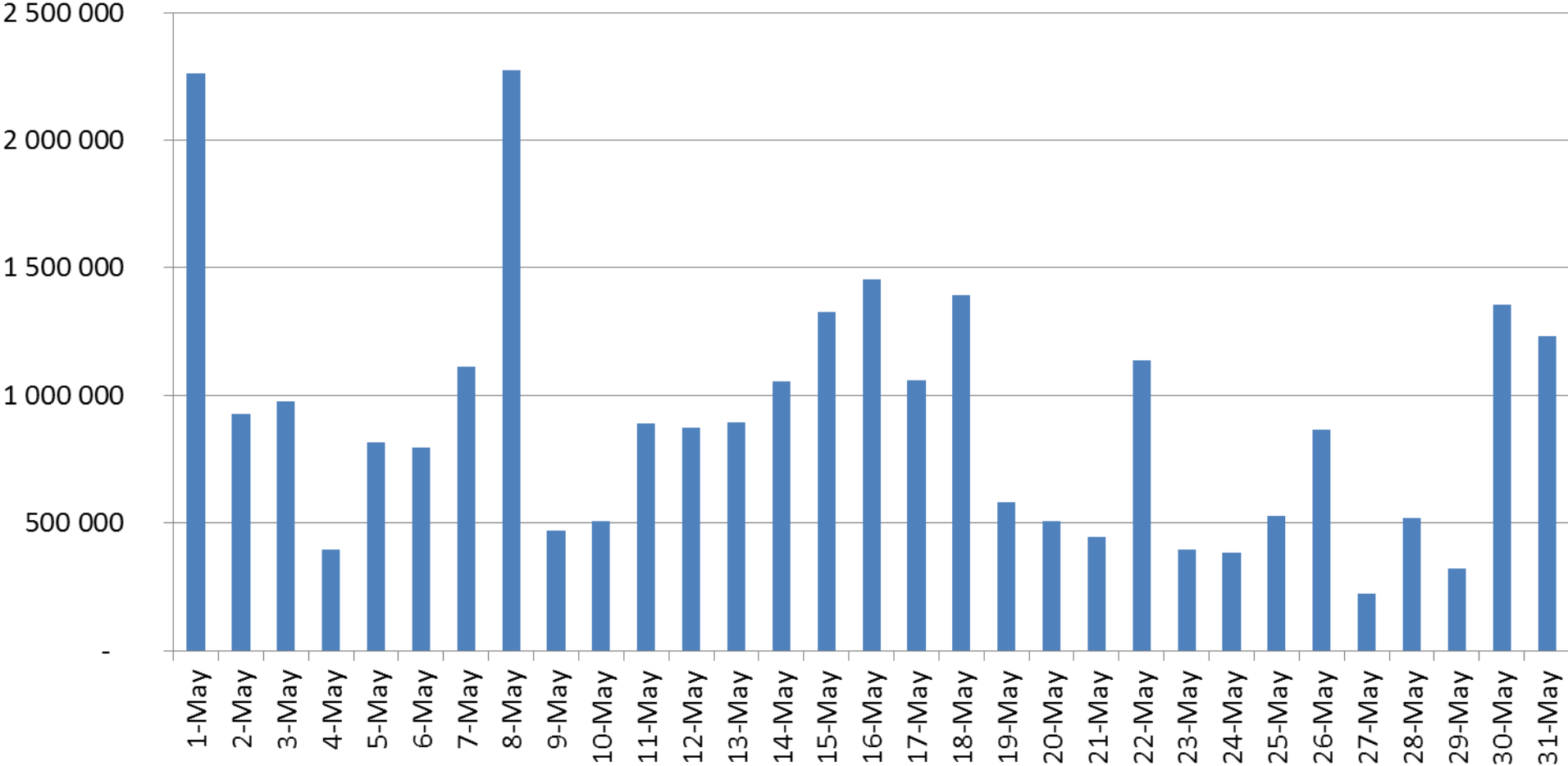
*NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:
Sum of daily (Value with $ATC=\infty$) - (Historical value)
The daily values being a Sum of hourly values.*

In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.

May 2013



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

26,9 M€

Social welfare = Producer surplus + Consumer surplus + Congestion rent

Producer surplus	49,7 M€
Consumer surplus	38,2 M€
Congestion Rent	-61,0 M€

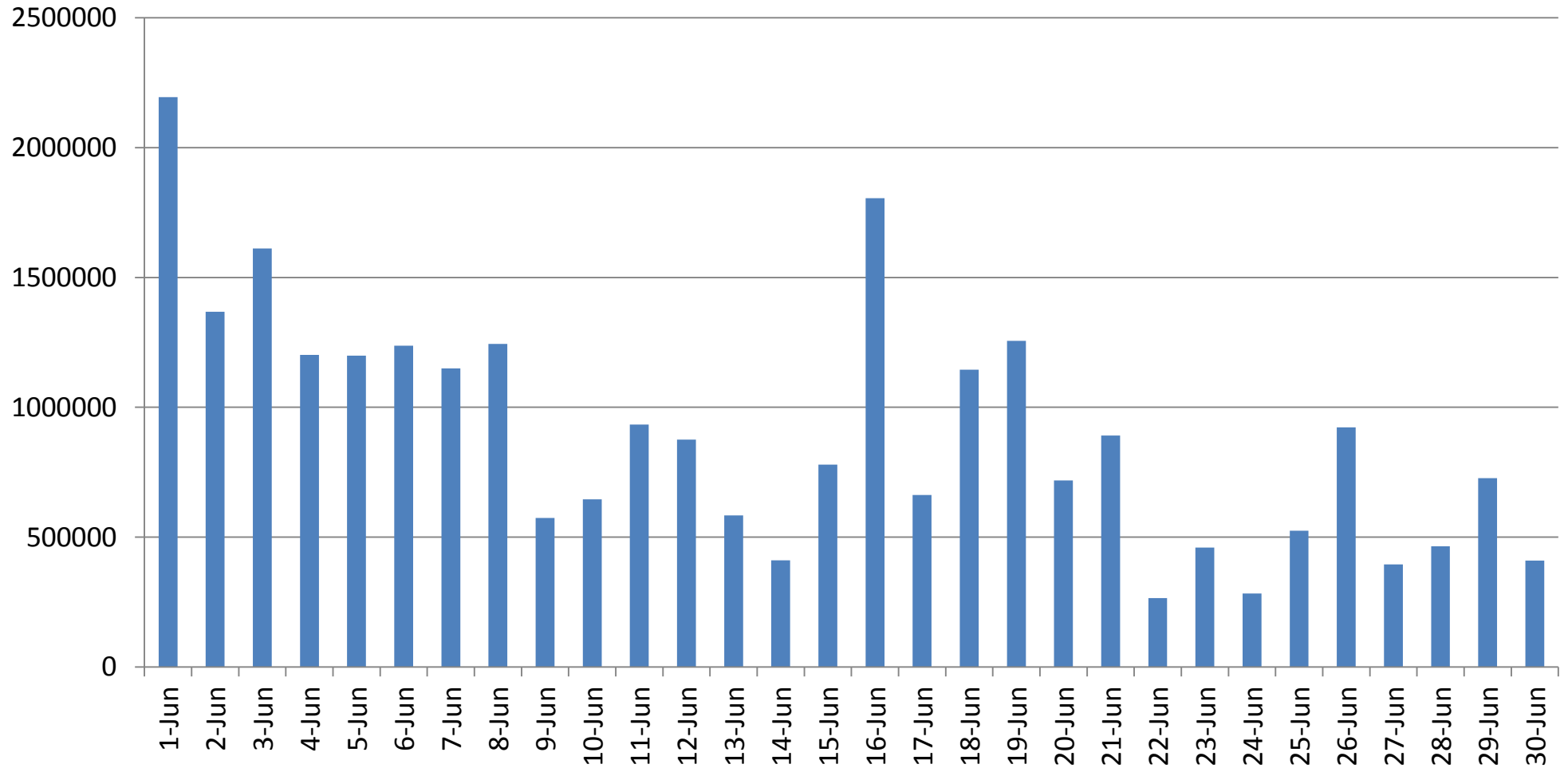
*NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:
Sum of daily (Value with $ATC=\infty$) - (Historical value)
The daily values being a Sum of hourly values.*

In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.

June 2013



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

10,7 M€

Social welfare = Producer surplus + Consumer surplus + Congestion rent

Producer surplus	34,6 M€
Consumer surplus	9,0 M€
Congestion Rent	-33,0 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily (Value with $ATC=\infty$) - (Historical value)

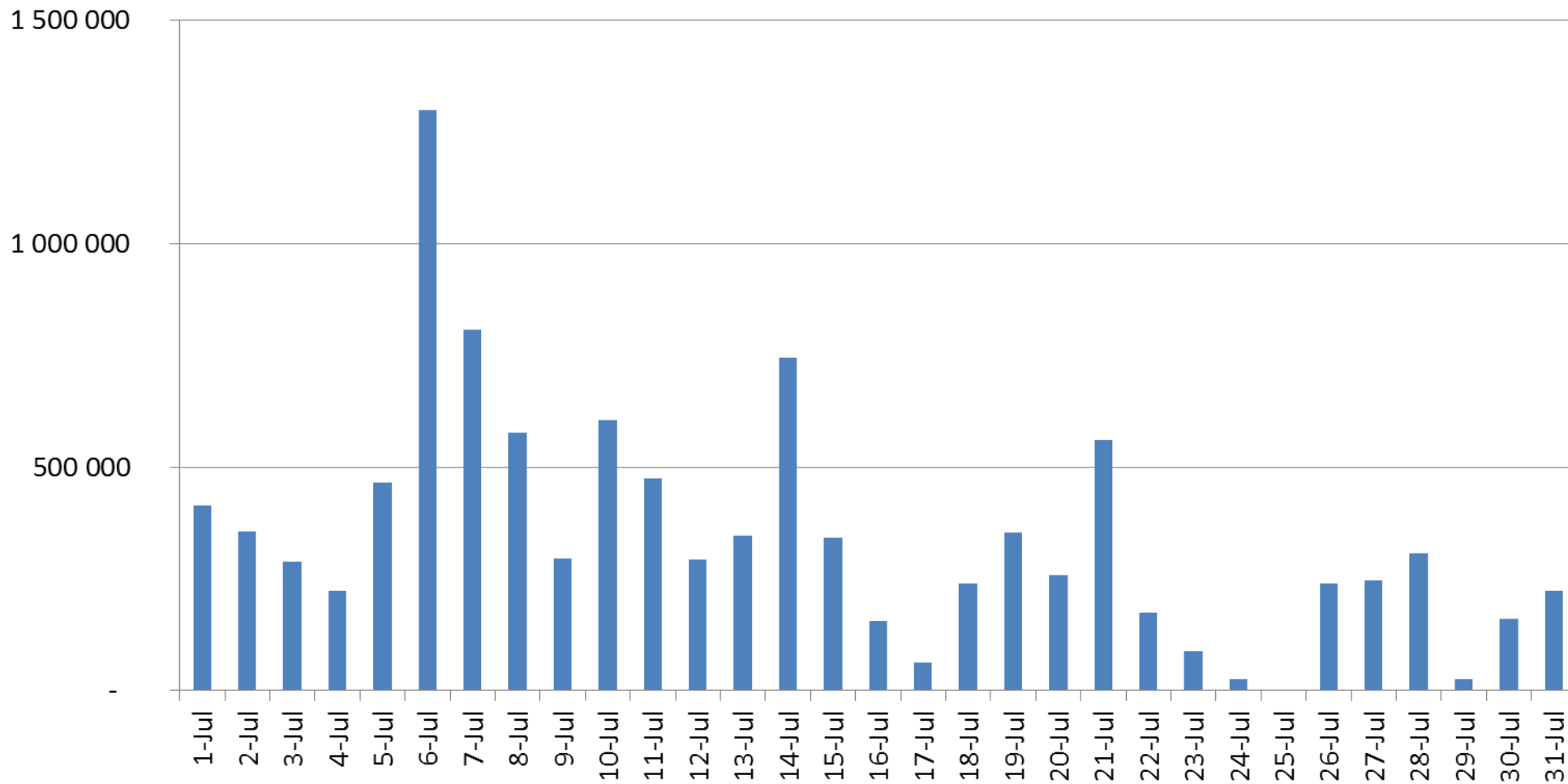
The daily values being a Sum of hourly values.

In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.

July 2013



Evolution of social welfare that could be gained with no network constraints



August 2013



- ▶ Additional Social welfare that could be gained with no network constraints:

9,6 M€

Social welfare = Producer surplus + Consumer surplus + Congestion rent

Producer surplus	27,0 M€
Consumer surplus	14,6 M€
Congestion Rent	-31,9 M€

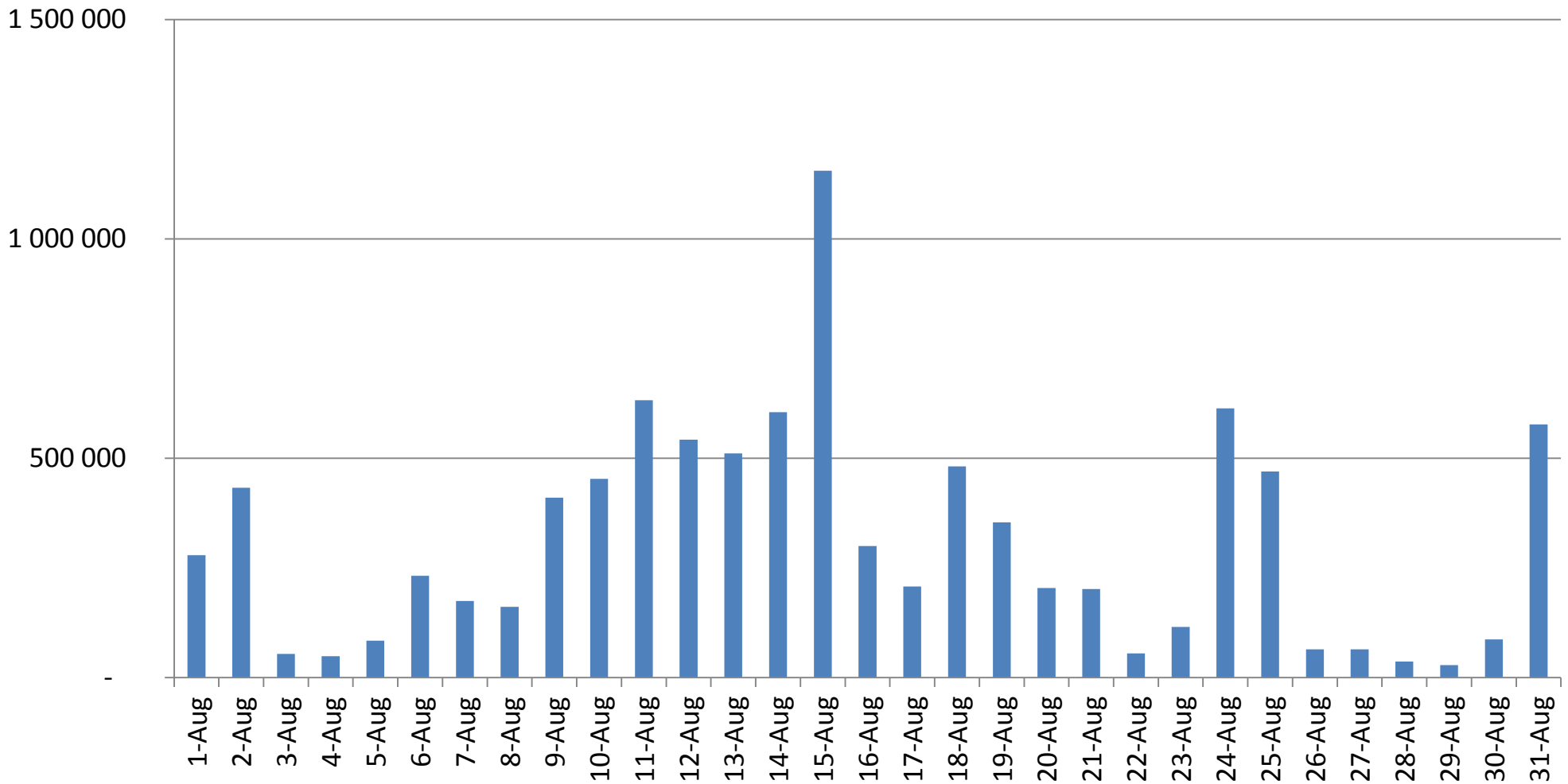
*NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:
Sum of daily (Value with $ATC=\infty$) - (Historical value)
The daily values being a Sum of hourly values.*

In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.

August 2013



Evolution of social welfare that could be gained with no network constraints



September 2013



- ▶ Additional Social welfare that could be gained with no network constraints:

7,5 M€

Social welfare = Producer surplus + Consumer surplus + Congestion rent

Producer surplus	38,7 M€
Consumer surplus	-8,7 M€
Congestion Rent	-22,6 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily (Value with $ATC=\infty$) - (Historical value)

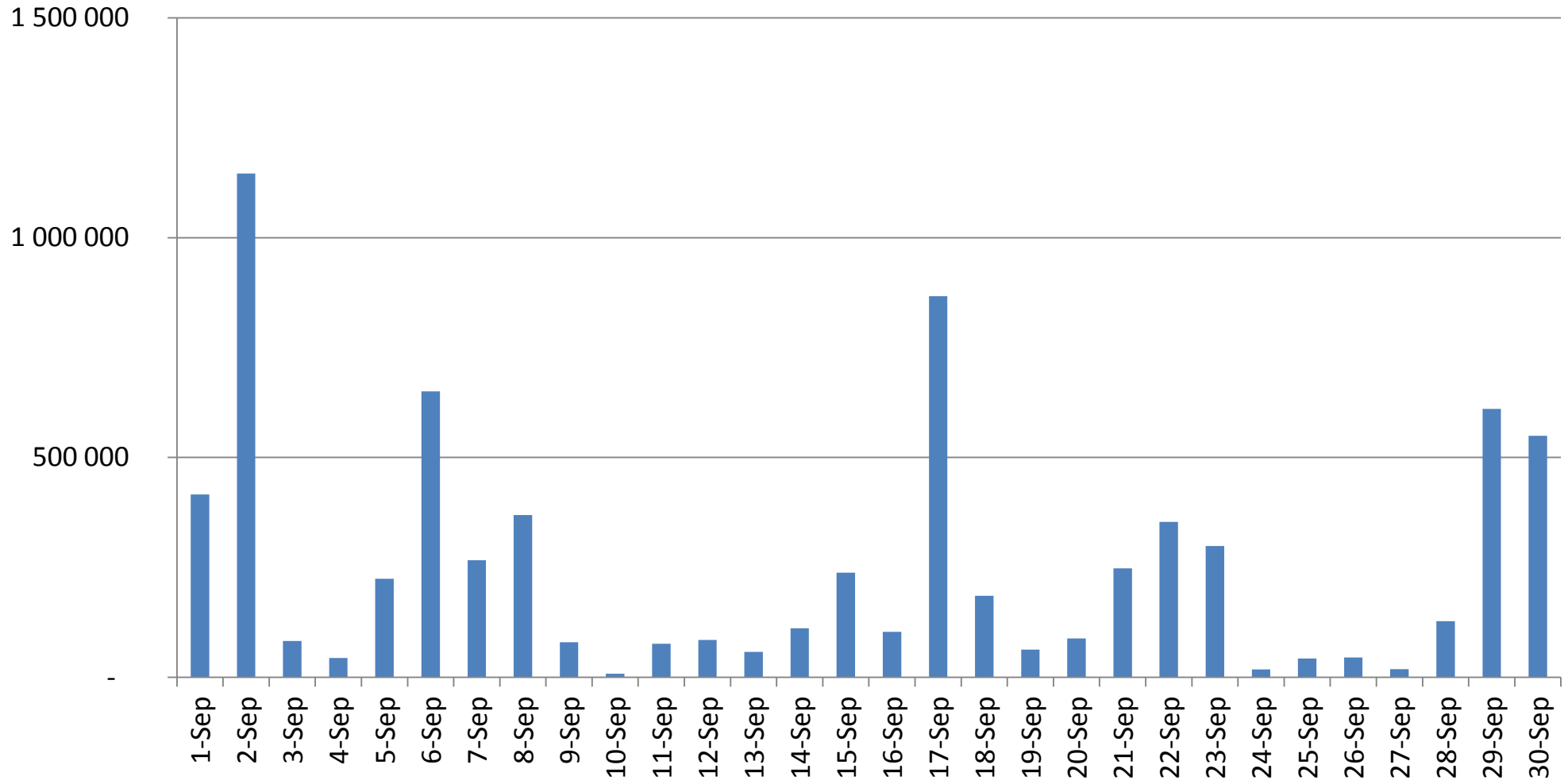
The daily values being a Sum of hourly values.

In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.

September 2013



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

18,2 M€

Social welfare = Producer surplus + Consumer surplus + Congestion rent

Producer surplus	84,9 M€
Consumer surplus	-35,9 M€
Congestion Rent	-30,8 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily (Value with $ATC=\infty$) - (Historical value)

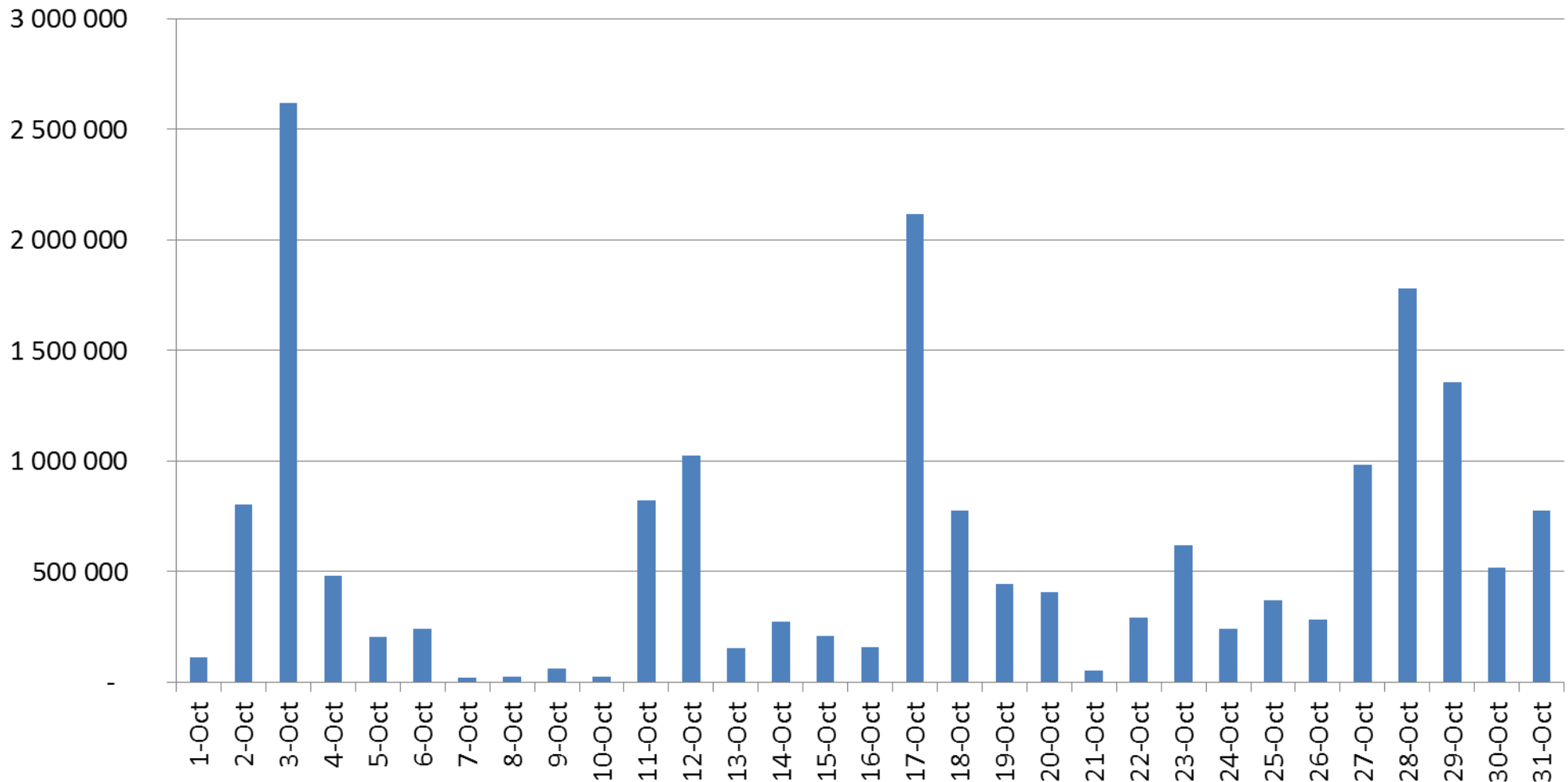
The daily values being a Sum of hourly values.

In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.

October 2013



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

22,1 M€

Social welfare = Producer surplus + Consumer surplus + Congestion rent

Producer surplus	97,9 M€
Consumer surplus	-34,9 M€
Congestion Rent	-41,0 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily (Value with $ATC=\infty$) - (Historical value)

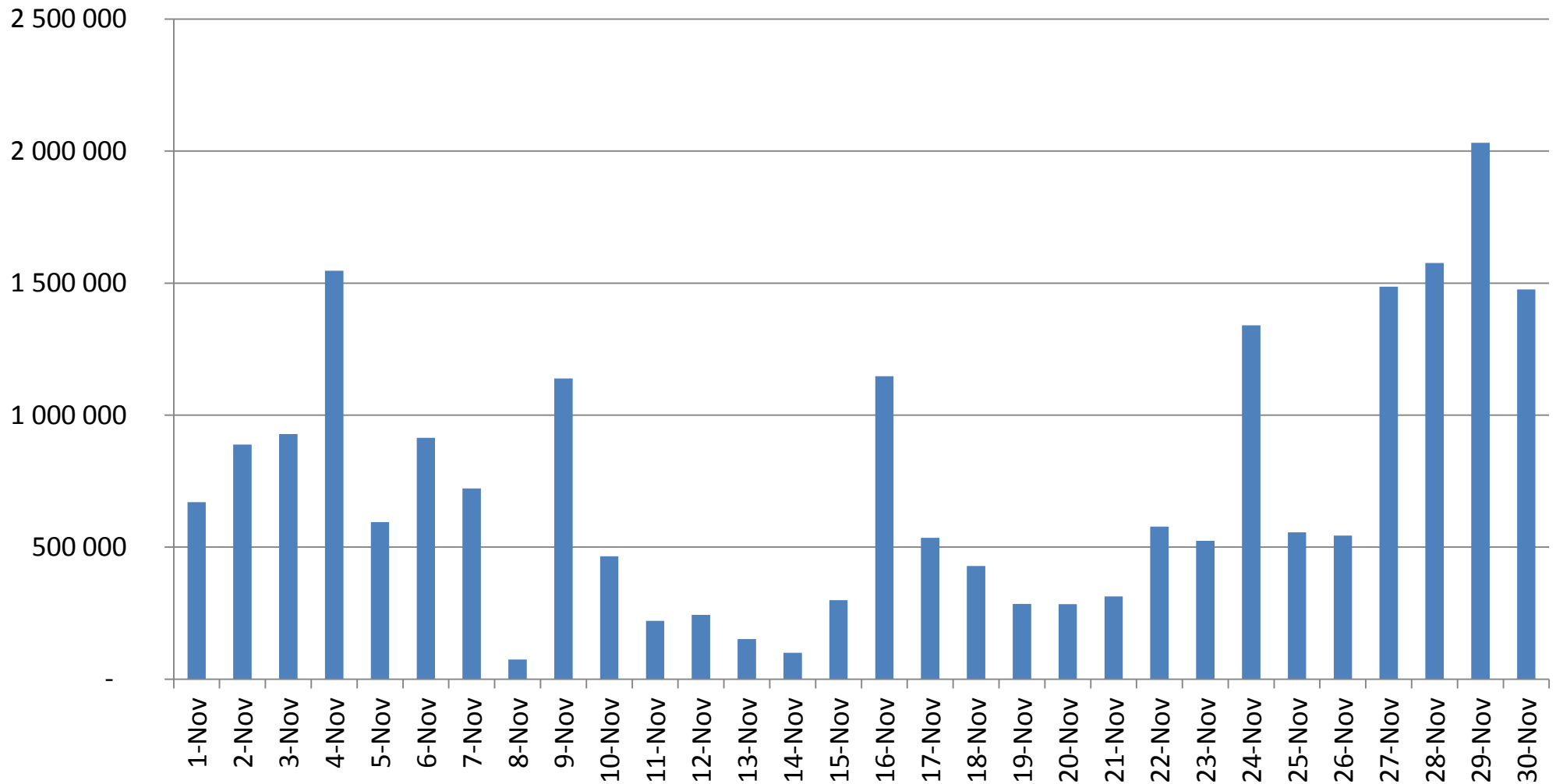
The daily values being a Sum of hourly values.

In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.

November 2013



Evolution of social welfare that could be gained with no network constraints



December 2013



- ▶ Additional Social welfare that could be gained with no network constraints:

35,7 M€

Social welfare = Producer surplus + Consumer surplus + Congestion rent

Producer surplus	157,8 M€
Consumer surplus	-76,2 M€
Congestion Rent	-45,9 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily (Value with $ATC=\infty$) - (Historical value)

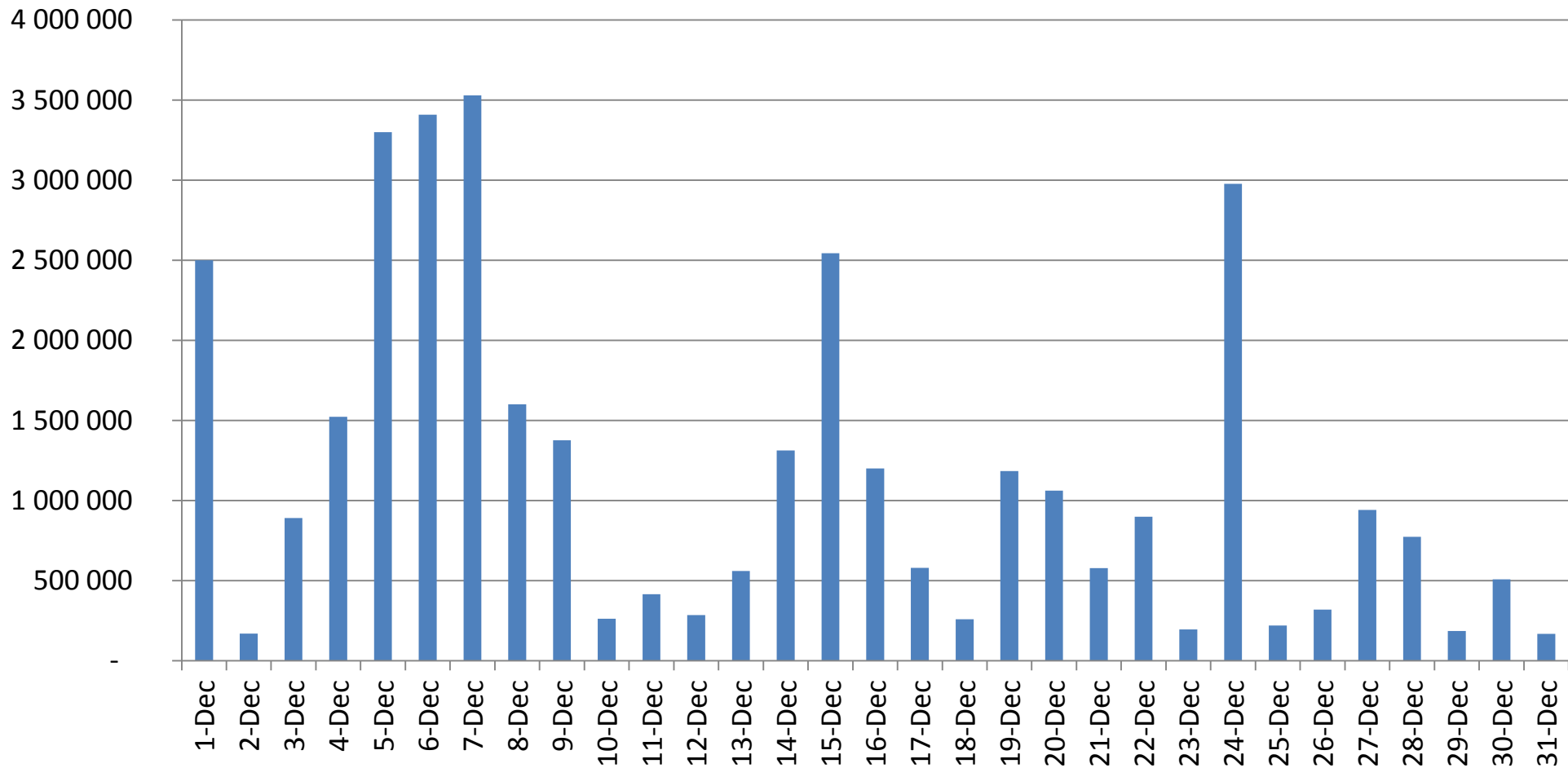
The daily values being a Sum of hourly values.

In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.

December 2013



Evolution of social welfare that could be gained with no network constraints





► Definitions / explanations

Additional Social welfare that could be gained with no network constraints (*Definition/explanation*)



- ▶ The figure shows the additional social welfare that could be gained with no network constraints inside CWE (borders D-NL, NL-B, B-F, D-F) .
- ▶ This key figure is calculated by hourly simulating/ coupling the CWE-region with $ATC = \infty$ at the borders D-NL, NL-B, B-F, D-F and comparing to real MC-results:
 - Producer surplus= Producer surplus ($ATC = \infty$)- Producer surplus(real ATC)
 - Consumer surplus=Consumer surplus ($ATC = \infty$)- Consumer surplus(real ATC)
 - Congestion rent= Congestion rent ($ATC = \infty$)- congestion rent(real ATC)
- ▶ NB: The simulations are made with ITVC flows remaining identical.

Additional Social welfare that could be gained with no network constraints (*Definition/explanation*)



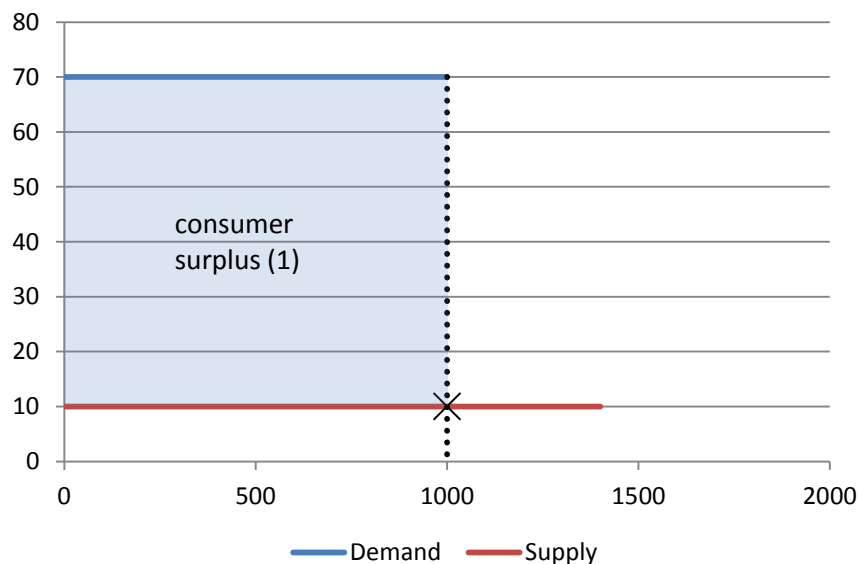
- ▶ The purpose of the welfare reporting is the demonstration of the benefits of CWE ATC Market Coupling and future CWE FB MC.
- ▶ The monthly publishing of this figure was commonly agreed between the CWE Regulators and the CWE Project. It is one part of the welfare reporting.



- ▶ Examples: *“In single hours the producer/consumer gain can be positive or negative”*

Decrease in consumer surplus example 1/2

Two isolated markets (zero capacity)

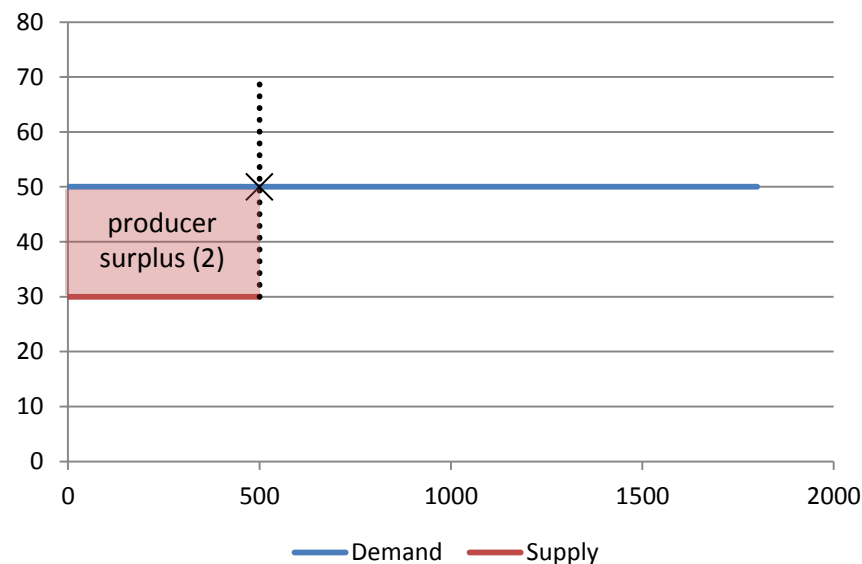


Area 1

MCV: 1000 MW, MCP: € 10

Consumer surplus: € 60K

Producer surplus: € 0



Area 2

MCV: 500 MW, MCP: € 50

Consumer surplus: € 0

Producer surplus: € 10K

Totals

Consumer surplus: € 60K

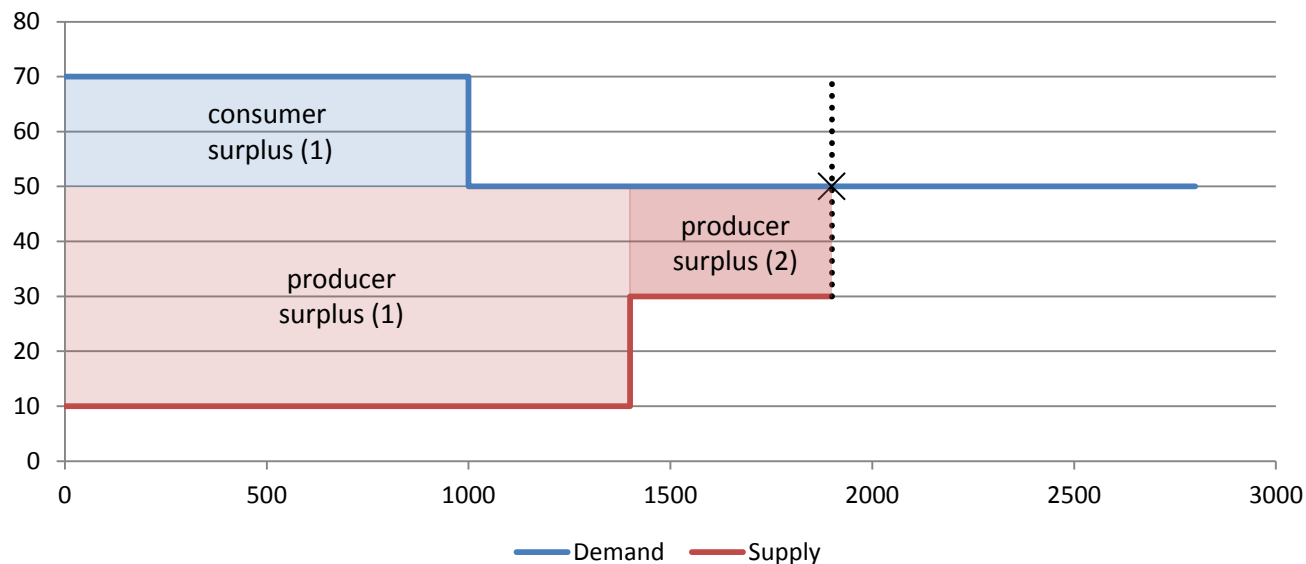
Producer surplus: € 10K

Congestion revenue: € 0

Social welfare: € 70K

Decrease in consumer surplus example 2/2

Two coupled markets (infinite capacity)



Area 1

MCV: 1400 MW, MCP: € 50

Consumer surplus: € 20K

Producer surplus: € 56K

Area 2

MCV: 500 MW, MCP: € 50

Consumer surplus: € 0

Producer surplus: € 10K

Totals

Consumer surplus: € 20K (-40K)

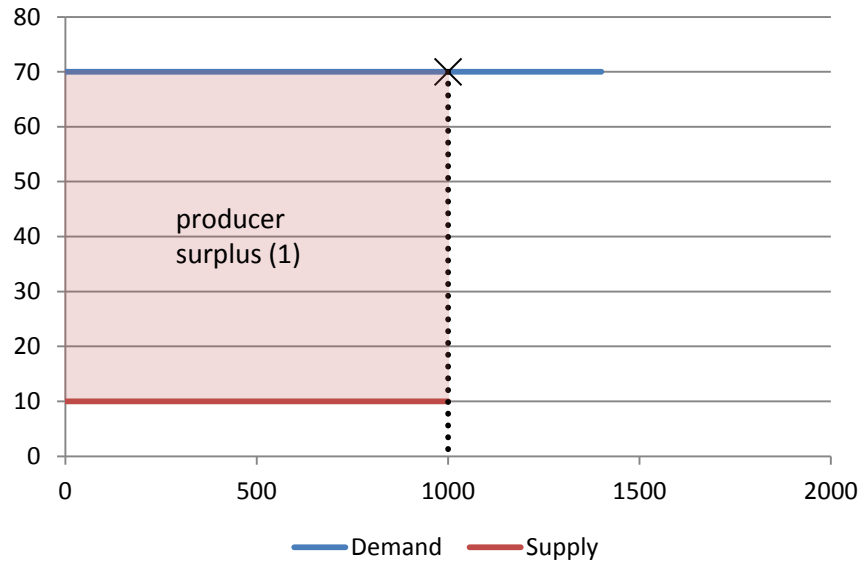
Producer surplus: € 66K (+56K)

Congestion revenue: € 0

Social welfare: € 86K (+16K)

Decrease in producer surplus example 1/2

Two isolated markets (zero capacity)

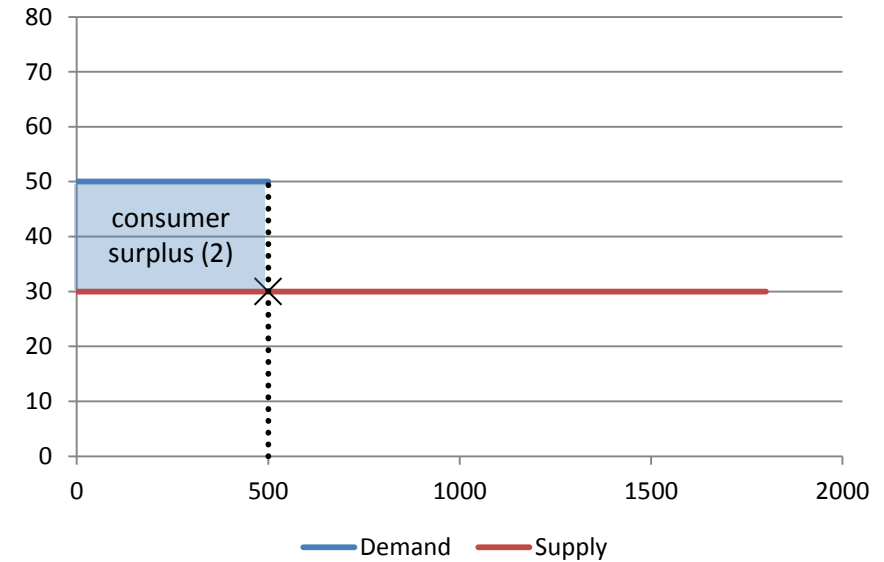


Area 1

MCV: 1000 MW, MCP: € 70

Consumer surplus: € 0

Producer surplus: € 60K



Area 2

MCV: 500 MW, MCP: € 30

Consumer surplus: € 10K

Producer surplus: € 0

Totals

Consumer surplus: € 10K

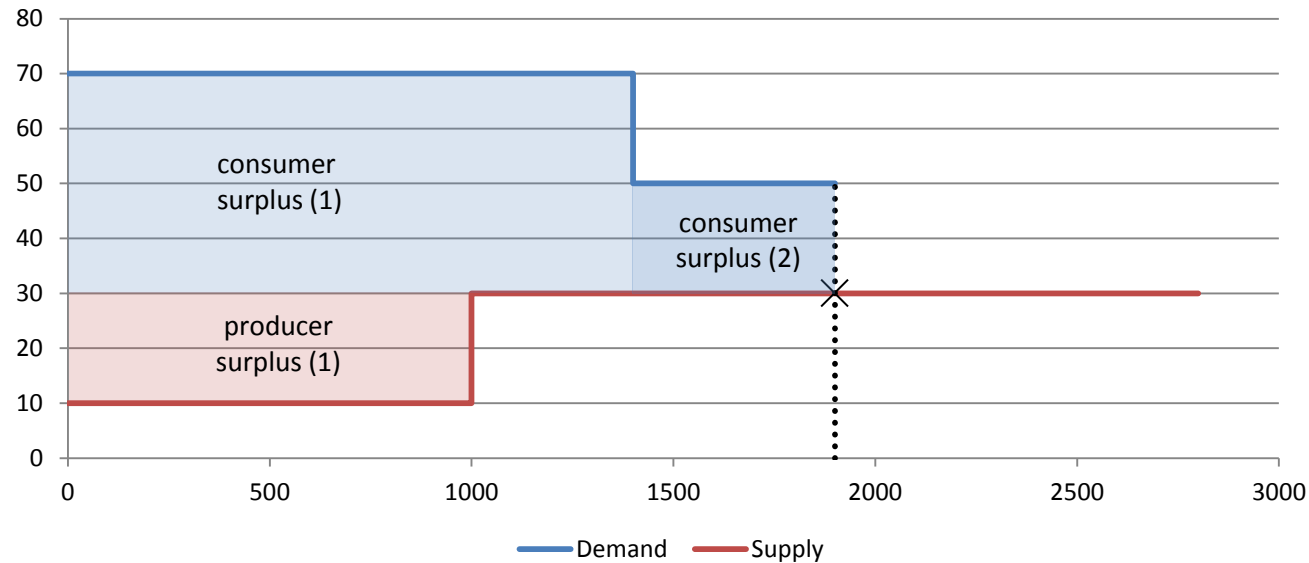
Producer surplus: € 60K

Congestion revenue: € 0

Social welfare: € 70K

Decrease in producer surplus example 2/2

Two coupled markets (infinite capacity)



Area 1

MCV: 1400 MW, MCP: € 30

Consumer surplus: € 56K

Producer surplus: € 20K

Area 2

MCV: 500 MW, MCP: € 30

Consumer surplus: € 10K

Producer surplus: € 0

Totals

Consumer surplus: € 66K (+56K) Congestion revenue: € 0

Producer surplus: € 20K (-40K) Social welfare: € 86K (+16K)