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# Sample Report

What does an MBox study include:

- Shows annual electric costs
- Peak demands
- Compressed air flow graphs (daily & weekly)
- Pressure graph
- Amp graph
- Leak assessment
- Opportunities to save money
- Shows a payback on any new equipment
- Professional audit report





# Air Study

10/14/2010

Subject: Air Study

Thank you for offering Air Technologies the opportunity to survey your existing compressed air installation and provide you with our energy saving recommendations for improving your system.

Atlas Copco's Energy Audit "AIRScan" Measurement Equipment was used to generate the air system and load cycles profiles. The measurement was conducted from 10/14/2009 to 10/21/2009.

Using the load profile measured the total cost of electricity to operate your existing compressed air system for one year, at 52 weeks, has been calculated. We have included the purposed annual savings, which is based on your present cost of electricity @ **8¢ per kWh**.

For the recommended installation, a flow correction of + 25 % was taken into account.

Annual power costs for compressor operation, based on 52 weeks of operation:

Existing installation's cost of electricity:	\$106,174.00
Recommended installation's cost of electricity:	\$87,677.00
<b>Attention : a flow correction of + 25 % was taken into account.</b>	

Savings with recommended system:	<b>\$18,497.00</b>
Cost of recommended system:	\$45,436.00
<b>Payback of recommended system:</b>	<b>2.35 years</b>

Hopefully, this information is valuable to you and your company and will help you lower your cost of energy to run your compressed air equipment. Thank you once again for the opportunity to discuss ways to help you improve the energy efficiency of your compressed air installation.

Sincerely,

## Recommendation

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The compressors installed in the existing compressor installation are:

1. Atlas Copco GA75FF Elek.
2. Atlas Copco GA75FF Elek.

The compressors installed in the recommended compressor installation are:

1. Atlas Copco GA75FF Elek.
2. Atlas Copco GA75FF Elek.
3. Atlas Copco GA75FF-VSD

Overview consumption, table 1

	Existing installation	Recommended installation
Annual power consumption (kWh)	1327179	1095965
Annual cost of power (Dollar)	106174	87677
Annual running hours	17462	17135

Energy savings summary based on recommendation, table 2

Annual Power Savings (kWh)	231213
Potential Cost Savings (Dollar)	18497

Attention : for the recommended installation, a flow correction of + x % was taken into account.

## Existing installation

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The compressors installed in the existing compressor installation are:

1. AC, GA75FF Elek.
2. Ac, GA75FF Elek.

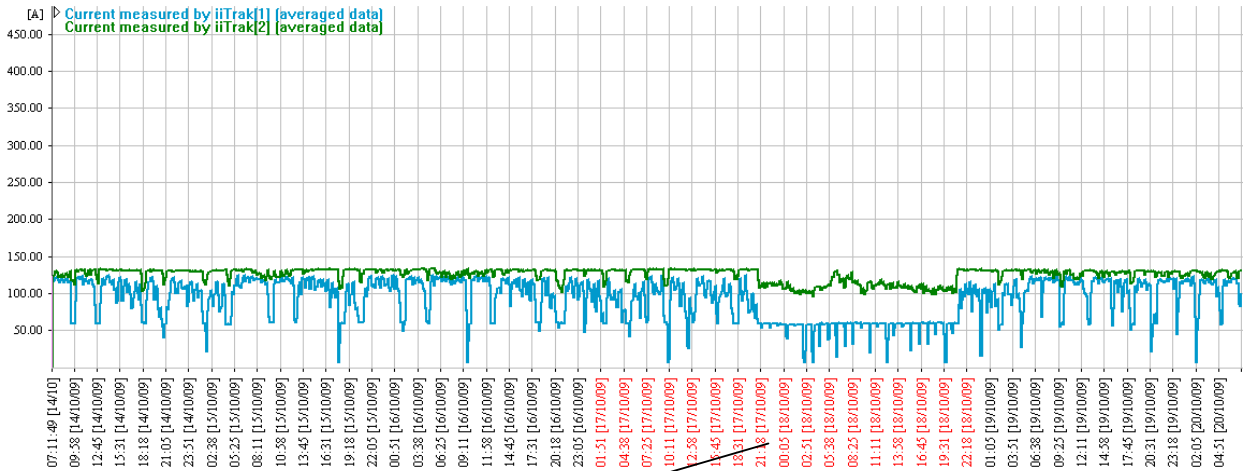
Data for installed system, table 3

	1	2
<b>Compressor information</b>		
FAD (cfm)	413	413
Unload Power (hp)	83	104.1
Load Power (hp)	102.1	111

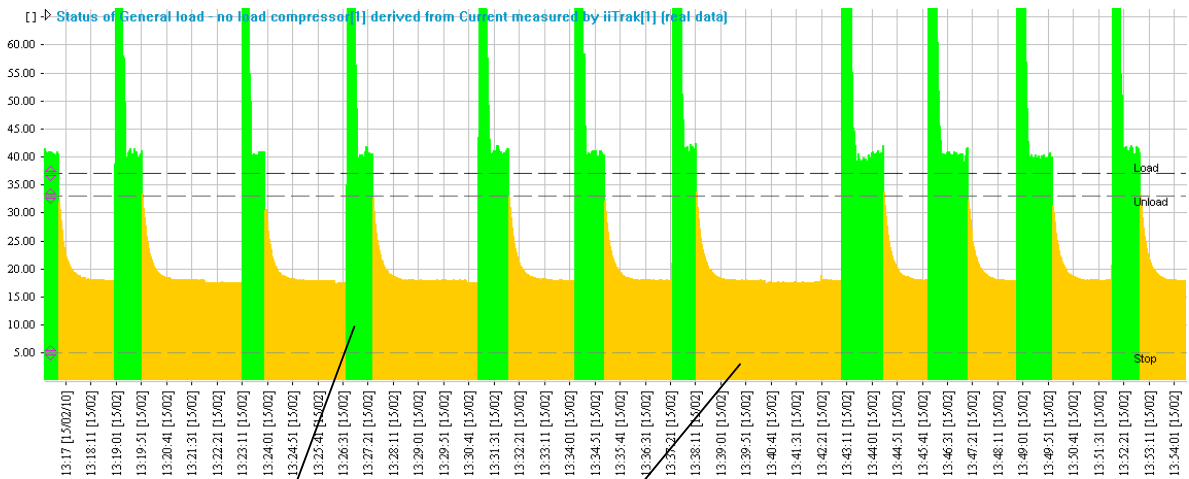
Calculated Data for installed system, table 4

	1	2	Total System
<b>Calculated Data</b>			
Loaded Time (h)	71.8	106.9	
Unloaded Time (h)	72.6	37.5	
Stopped Time (h)	0	0	
Load/Unload Cycles	2302	10645	
Energy Loaded (kWh)	5465	8852	14316
Energy Unloaded (kWh)	4654	2980	7634
Total Energy Cons. (kWh)	10119	11831	21950
Energy Cost (Dollar)	809	947	1756

Amp graph



Weekend



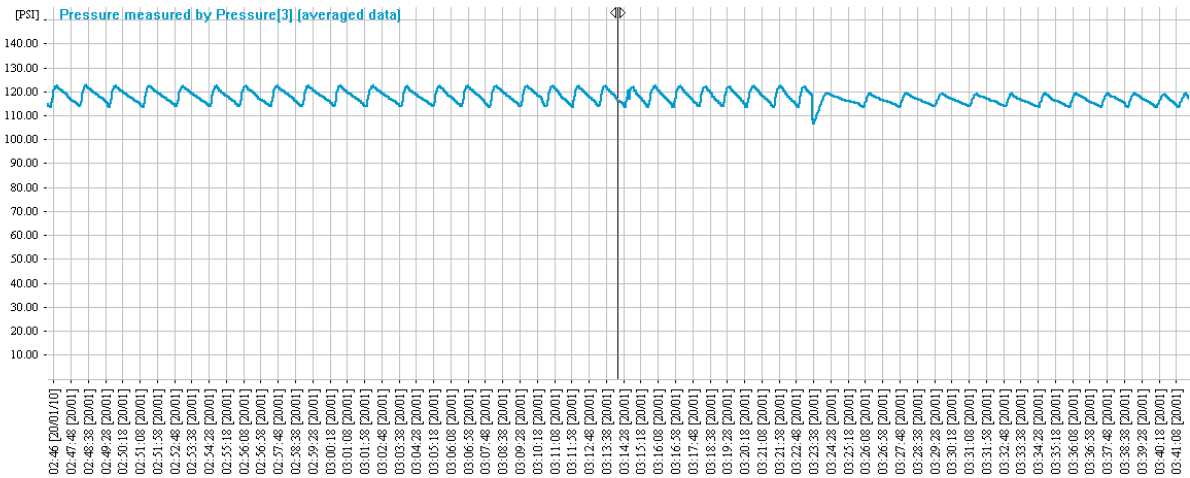
Loaded

Unloaded

Measured Demand for installed system, table 5

	1	2	Total System
<b>Measured Demand (cfm)</b>			
Weekly – min demand	0.0	0.0	0.0
Weekly – max demand	411.8	412.6	824.1
Weekly – average demand	154.5	229.7	383.5
Monday – min demand	0.0	0.0	0.0
Monday – max demand	409.3	412.2	823.7
Monday – average demand	265.2	282.2	544.7
Tuesday – min demand	0.0	0.0	0.0
Tuesday – max demand	401.5	410.3	822.3
Tuesday – average demand	93.8	60.6	153.8
Wednesday – min demand	0.0	0.0	0.0
Wednesday – max demand	410.3	412.2	823.8
Wednesday – avg demand	177.5	228.4	405.1
Thursday – min demand	1.2	0.3	163.2
Thursday – max demand	411.8	412.5	823.9
Thursday – average demand	253.4	327.0	579.7
Friday – min demand	0.6	0.4	147.0
Friday – max demand	410.7	412.4	824.1
Friday – average demand	262.3	314.8	576.3
Saturday – min demand	0.3	166.0	166.0
Saturday – max demand	401.3	412.6	822.5
Saturday – average demand	159.0	375.6	533.9
Sunday – min demand	0.3	131.1	133.5
Sunday – max demand	370.2	412.2	788.2
Sunday – average demand	25.2	248.9	274.4

Pressure graph

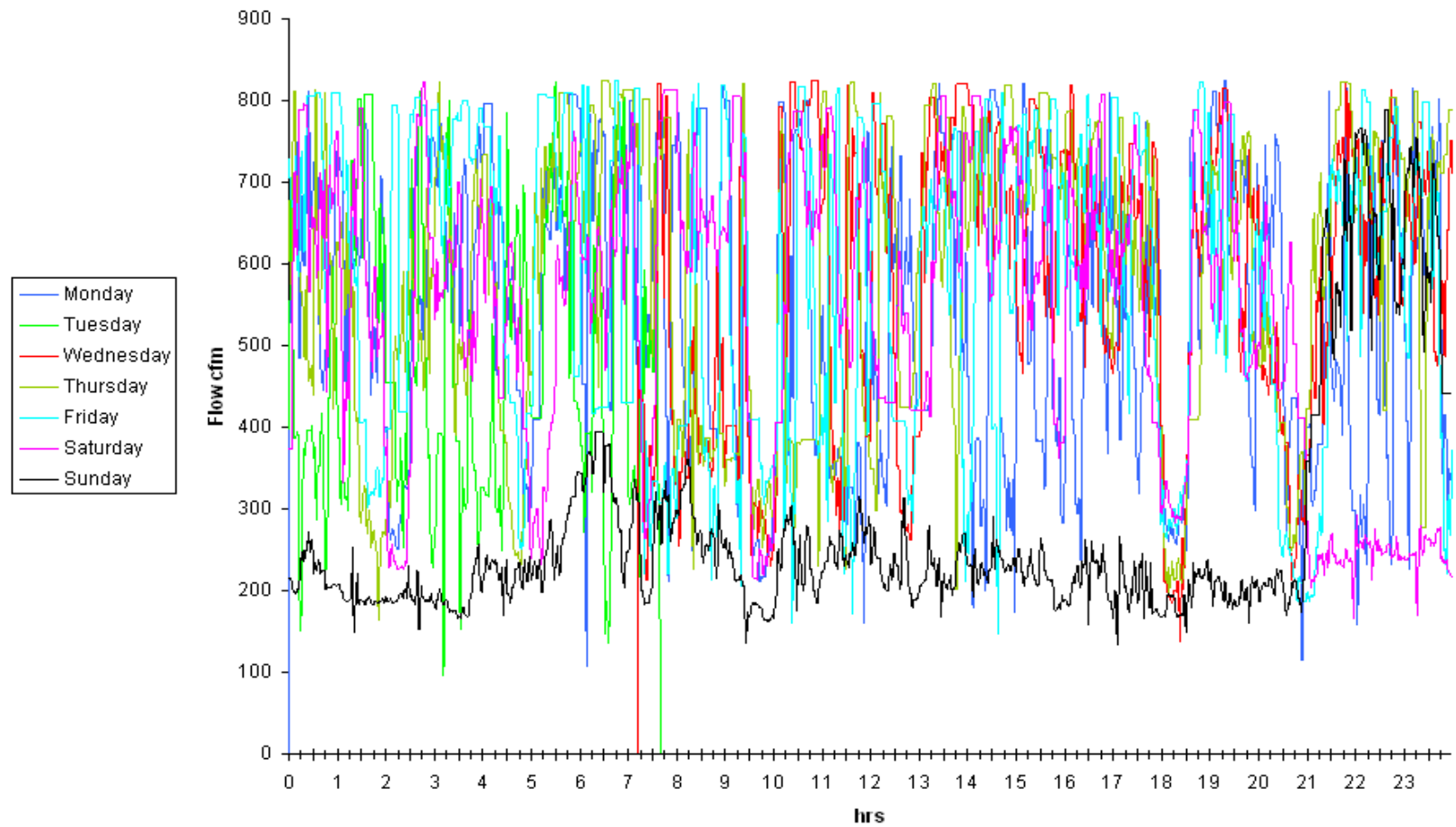


Graphical data for the existing installed system

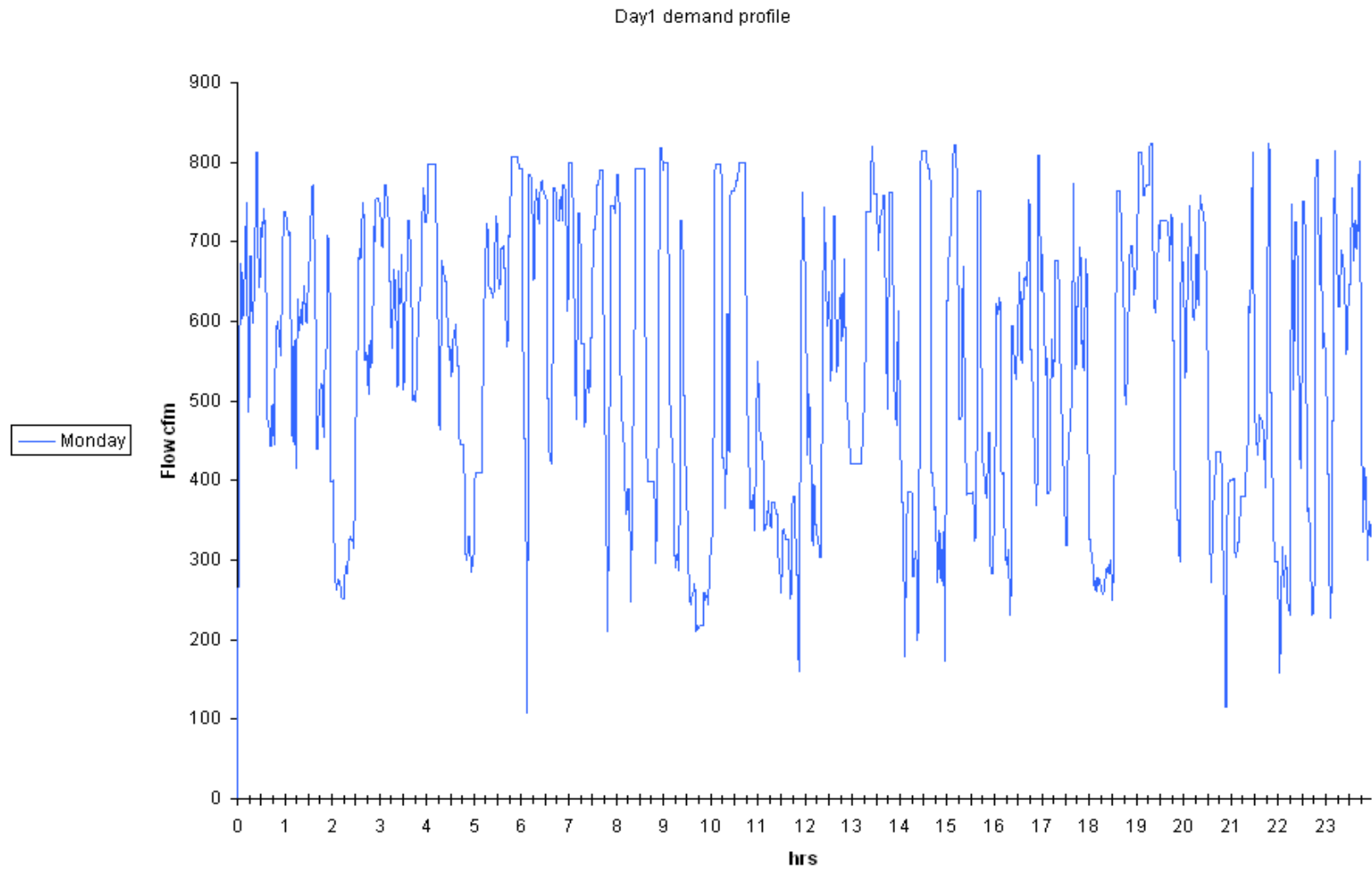
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Weekly demand profile – Graph1

Weekly demand profile

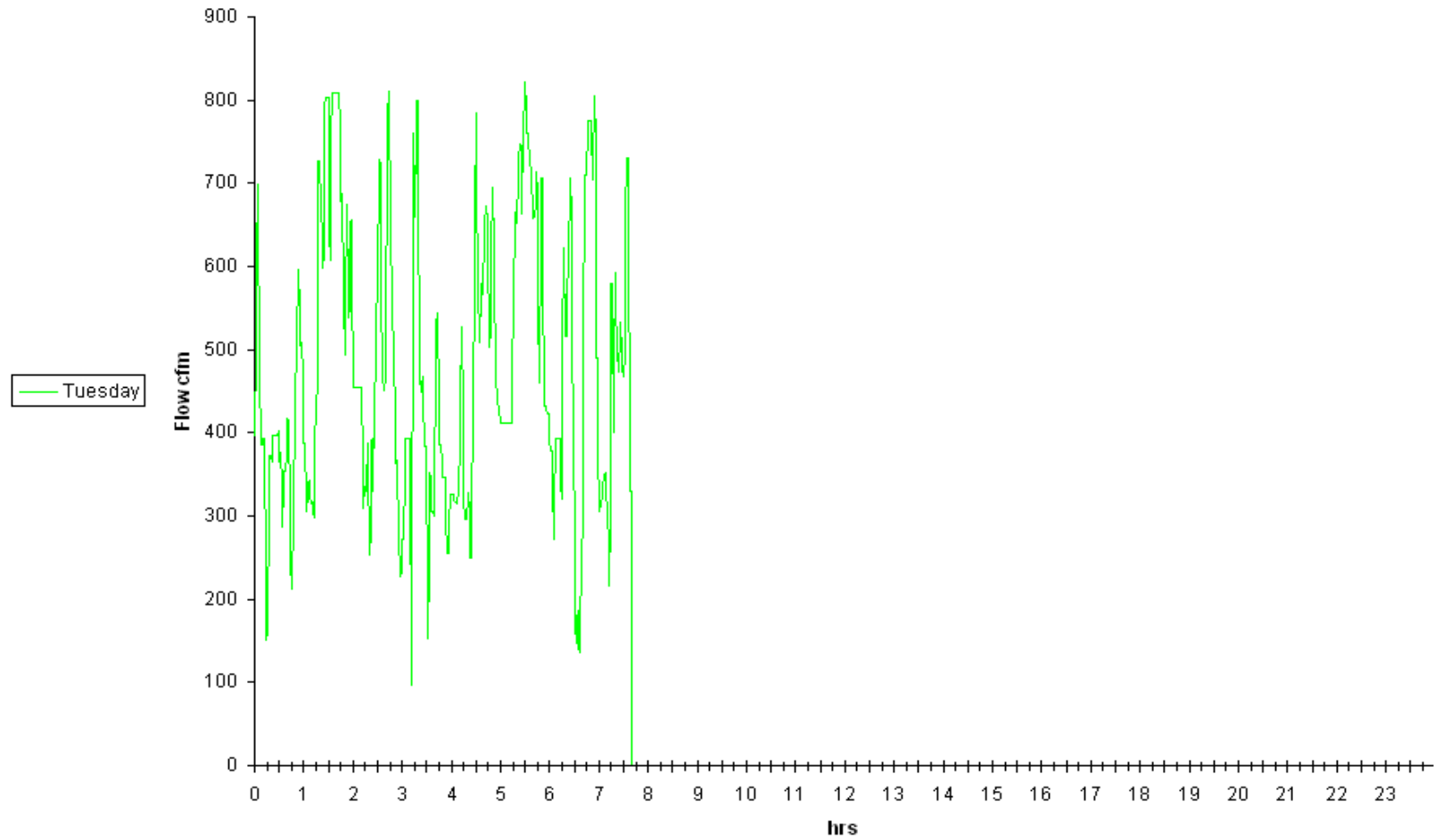


## Monday demand profile – Graph2

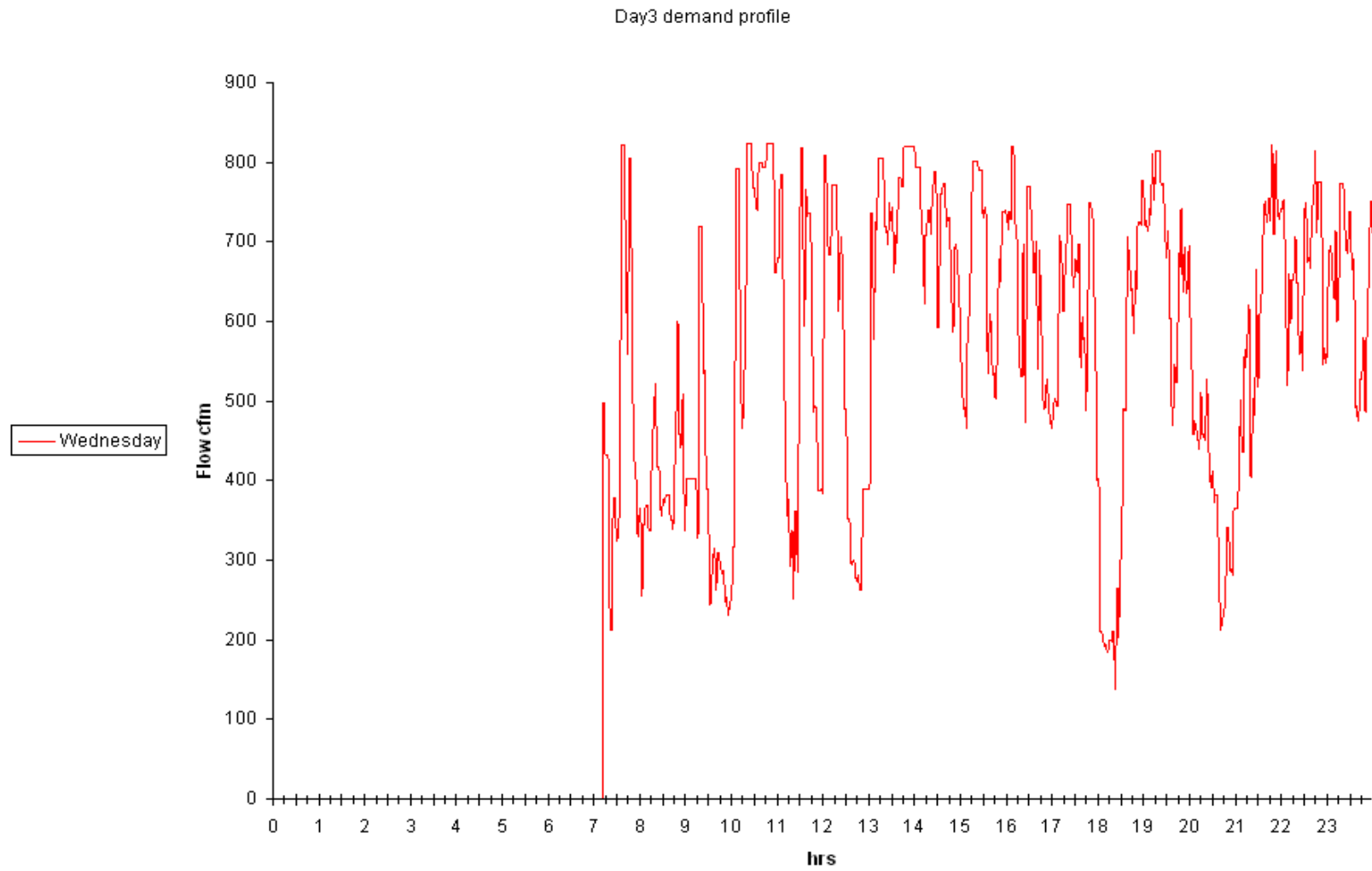


### Tuesday demand profile – Graph3

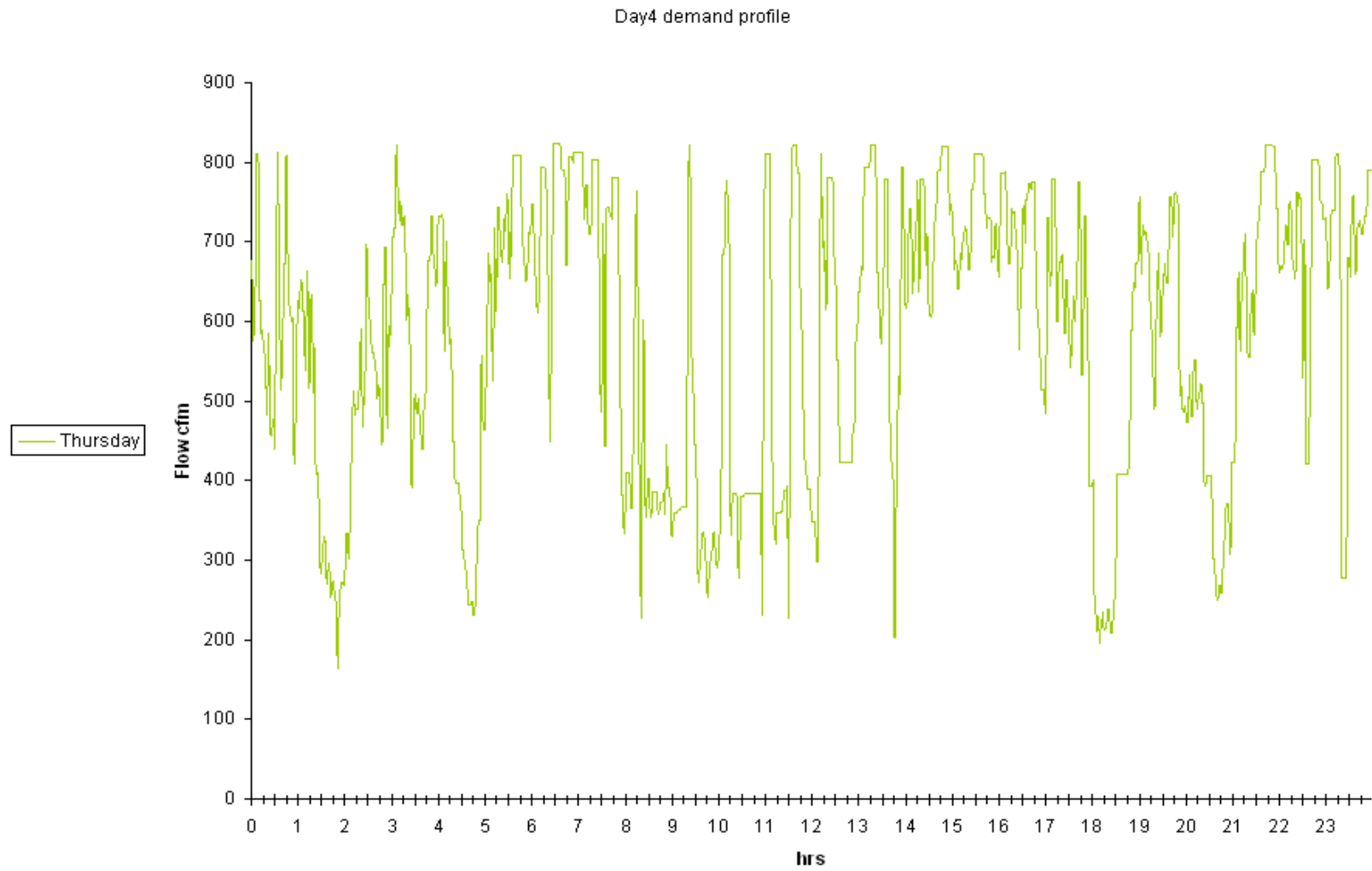
Day2 demand profile



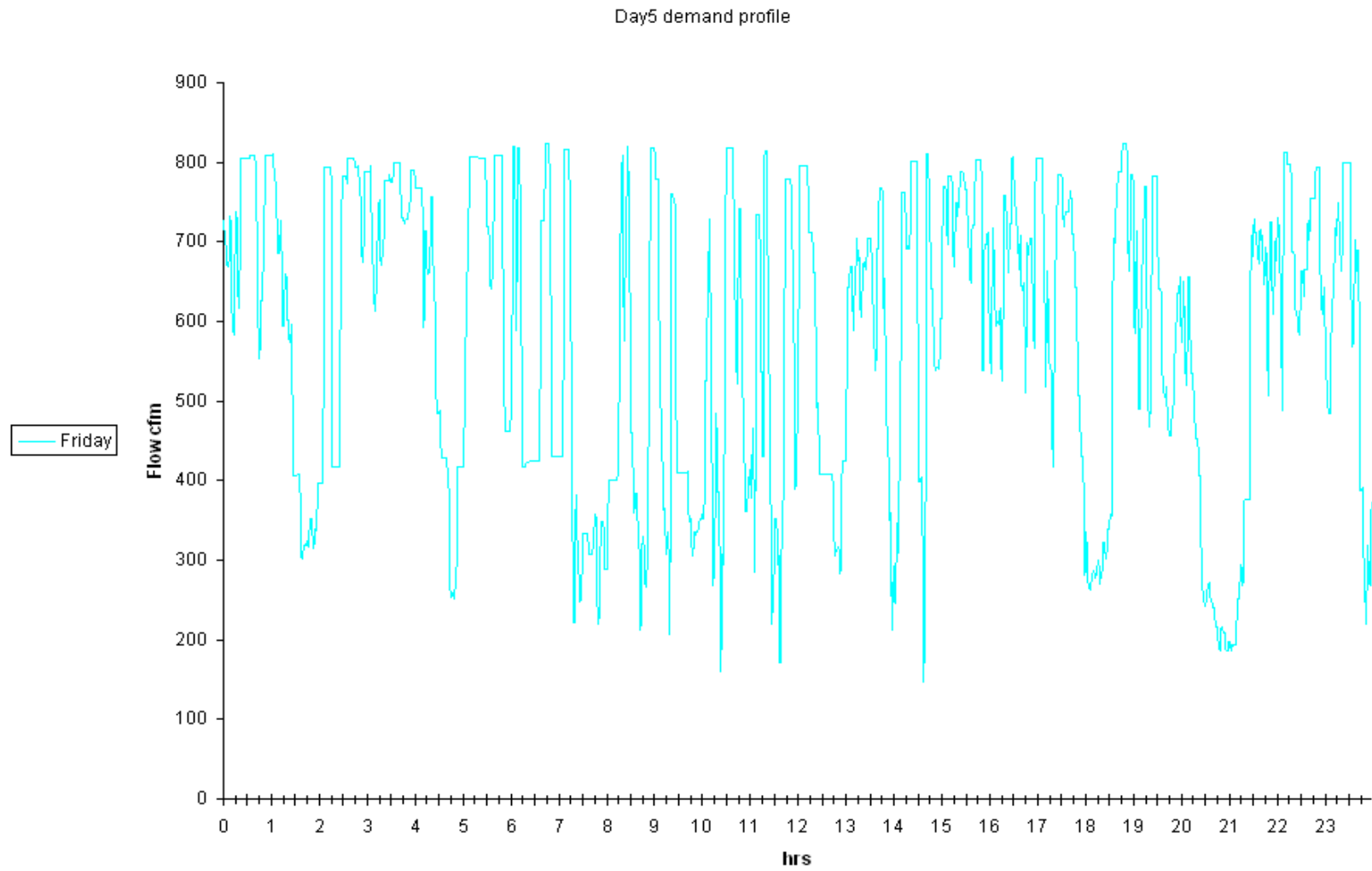
### Wednesday demand profile – Graph4



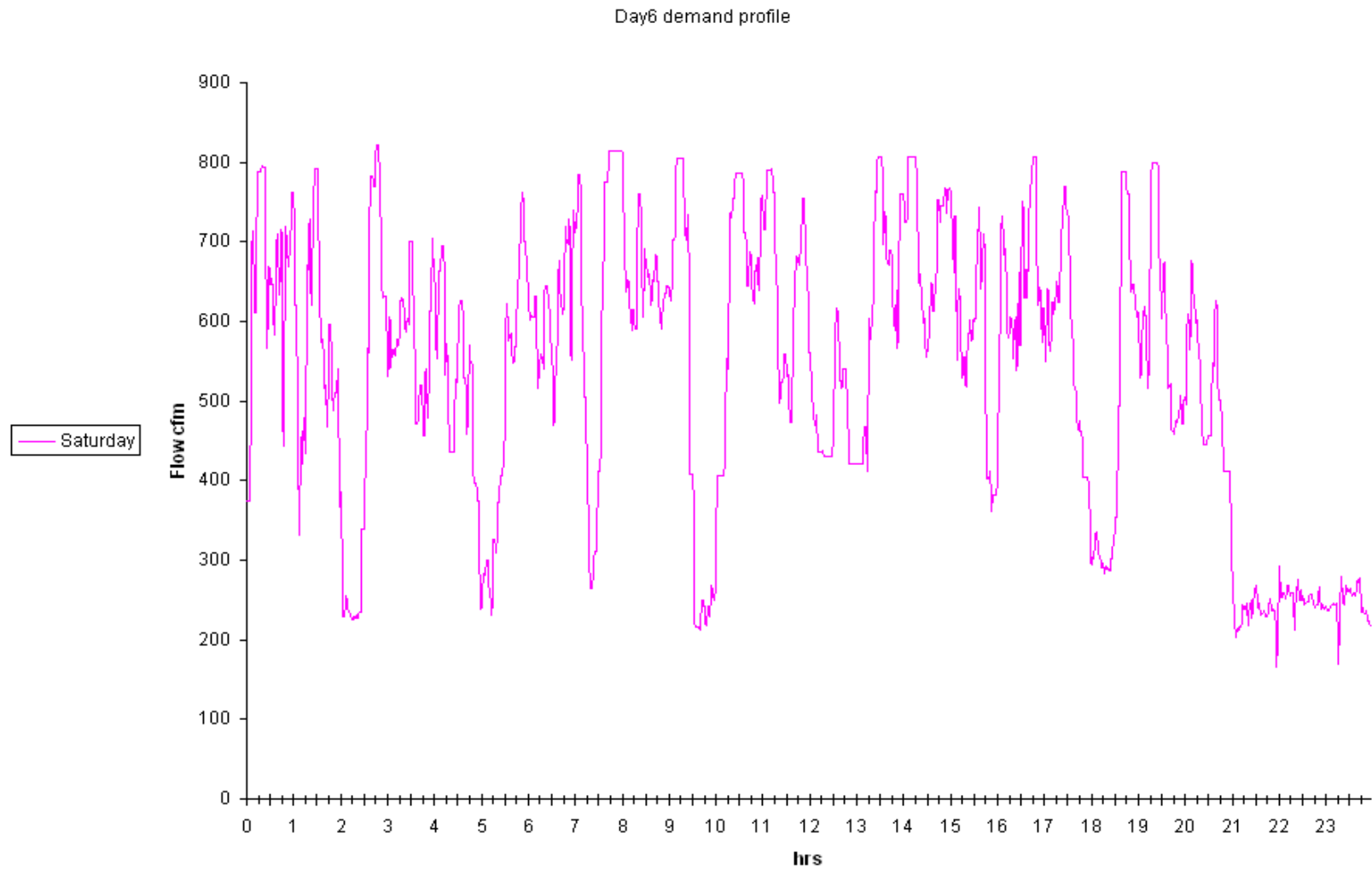
### Thursday demand profile – Graph5



### Friday demand profile – Graph6

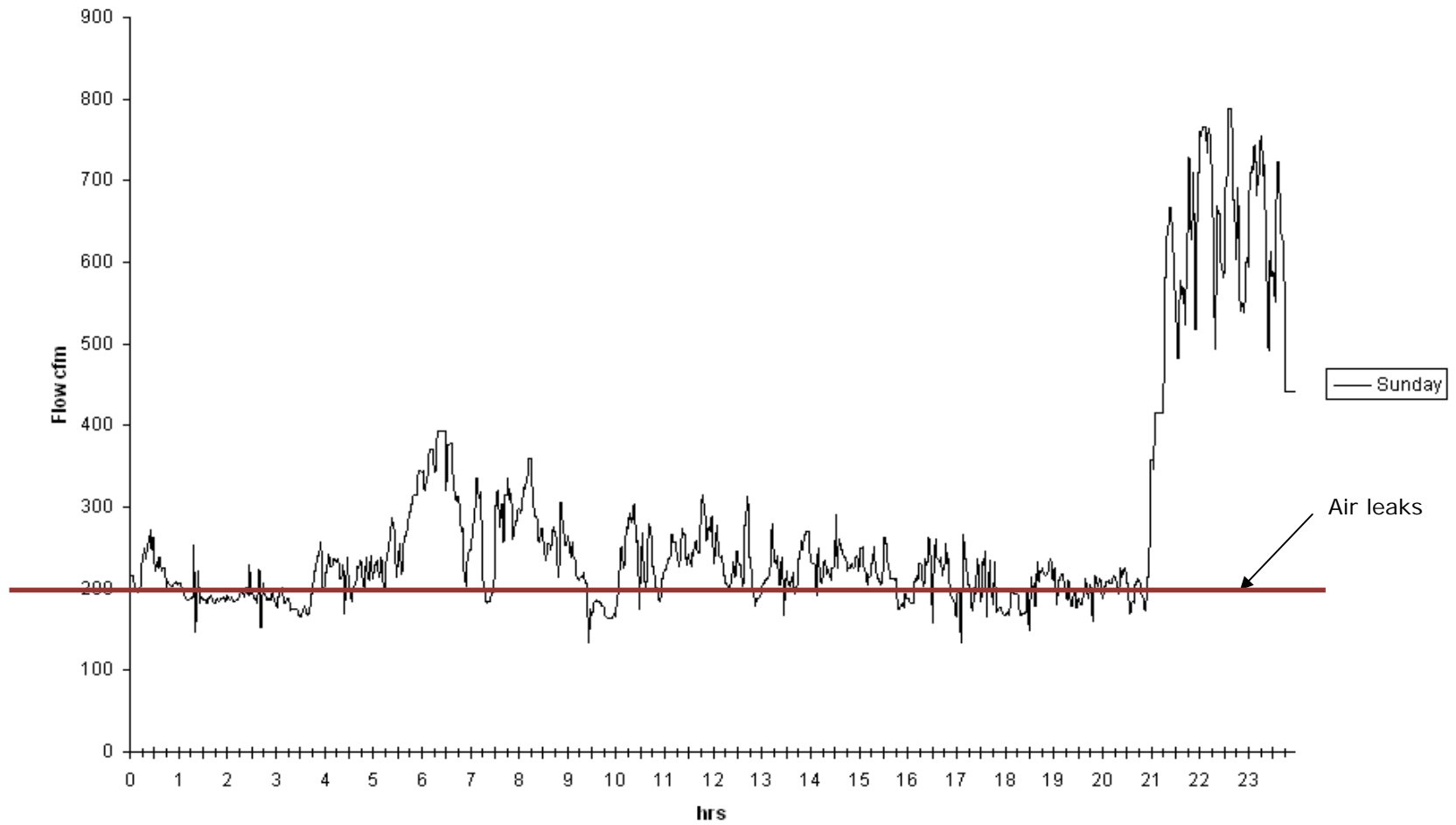


### Saturday demand profile – Graph7



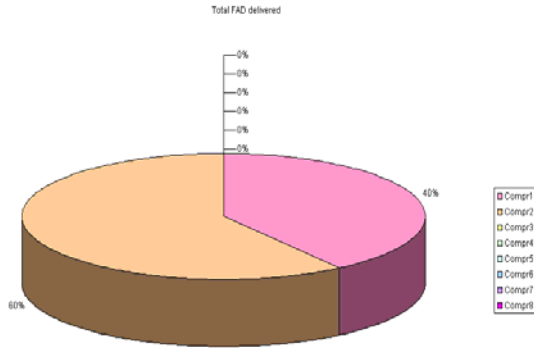
## Sunday demand profile – Graph8

Day7 demand profile

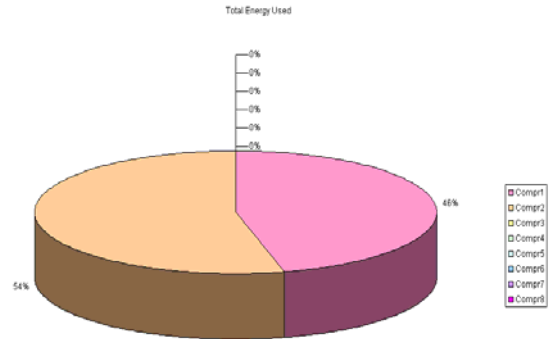


## Energy Use

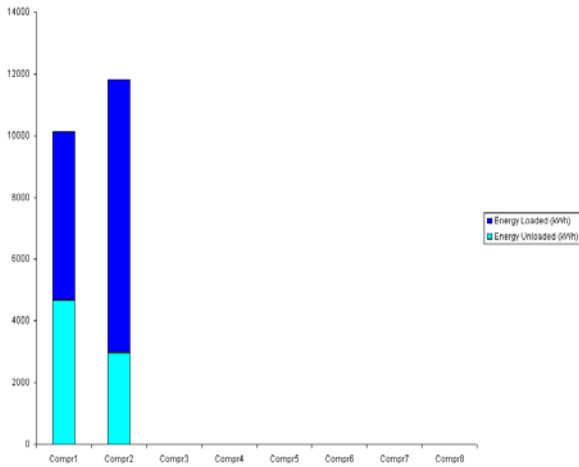
Overview Total Fad Delivered – Graph9



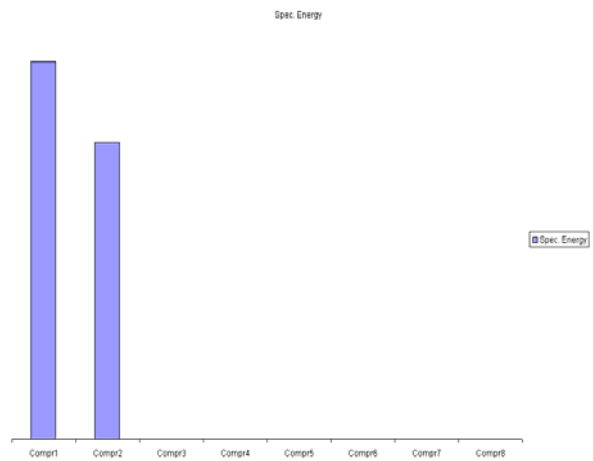
Overview total energy consumption – Graph10



Overview Load/Unloaded energy used – Graph11



Overview Spec Energy Bar – Graph12



## Simulated installation

The compressors installed in the simulated compressor installation are:

4. Atlas Copco GA75FF Elek.
5. Atlas Copco GA75FF Elek.
6. Atlas Copco GA75FF-VSD

Data for simulated system, table 6

	1	2	3
<b>Compressor information</b>			
FAD (cfm)	413	413	---
Unload Power (hp)	83	104.1	---
Load Power (hp)	102.1	111	---
Min Load Power (hp)	---	---	---
Unload Pressure (psi)	115	112	---
Load Pressure (psi)	104	100	---
Pressure Setpoint (psi)	---	---	104
Indirect Stop Level (psi)	---	---	110
Direct Stop Level (psi)	---	---	120
Prog.Stop Time (s)	20	20	---
# Starts	3/h	3/h	---

Calculated Data for installed system, table 7

	1	2	3	Total System
<b>Calculated Data</b>				
Loaded Time (h)	132.5	28.2	108.4	
Unloaded Time (h)	11.5	2.8	0	
Stopped Time (h)	0.5	113.4	36	
Load/Unload Cycles-VSD Stops	1266	127	1535	
Energy Loaded (kWh)	10081	2339	4699	17119
Energy Unloaded (kWh)	786	221	0	1007
Total Energy Cons. (kWh)	10868	2559	4699	18126
Energy Cost (Dollar)	869	205	376	1450

Attention : a flow correction of + 25 % was taken into account.

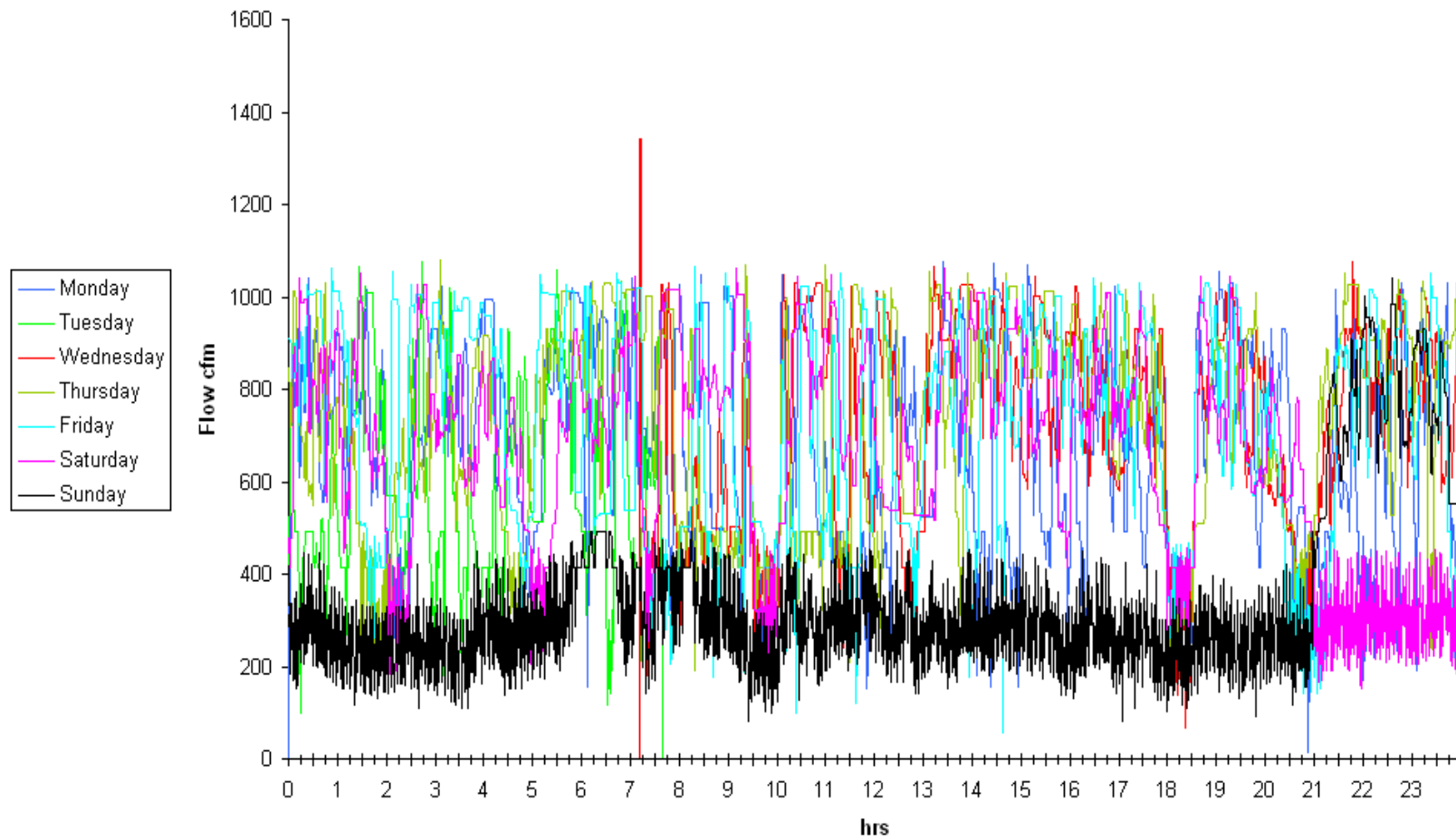
Calculated Demand for simulated system, table 8

	1	2	3	Total System
<b>Calculated Demand (cfm)</b>				
Weekly – min demand	0.0	0.0	0.0	0.0
Weekly – max demand	412.6	412.6	518.0	1343.2
Weekly – average demand	284.6	60.7	134.2	479.5
Monday – min demand	0.0	0.0	0.0	0.0
Monday – max demand	412.6	412.6	518.0	1074.6
Monday – average demand	399.4	70.6	211.0	680.9
Tuesday – min demand	0.0	0.0	0.0	0.0
Tuesday – max demand	412.6	412.6	518.0	1075.0
Tuesday – average demand	126.6	15.0	50.8	192.3
Wednesday – min demand	0.0	0.0	0.0	0.0
Wednesday – max demand	412.6	412.6	518.0	1343.2
Wednesday – average demand	280.7	81.3	145.4	507.5
Thursday – min demand	151.3	0.0	0.0	156.7
Thursday – max demand	412.6	412.6	518.0	1081.0
Thursday – average demand	402.5	120.2	201.9	724.6
Friday – min demand	55.0	0.0	0.0	55.0
Friday – max demand	412.6	412.6	518.0	1066.6
Friday – average demand	399.7	131.8	189.0	720.5
Saturday – min demand	137.5	0.0	0.0	151.3
Saturday – max demand	412.6	412.6	518.0	1062.1
Saturday – average demand	388.1	60.1	219.1	667.3
Sunday – min demand	68.8	0.0	0.0	82.2
Sunday – max demand	412.6	412.6	518.0	1039.8
Sunday – average demand	280.2	6.6	56.2	343.0

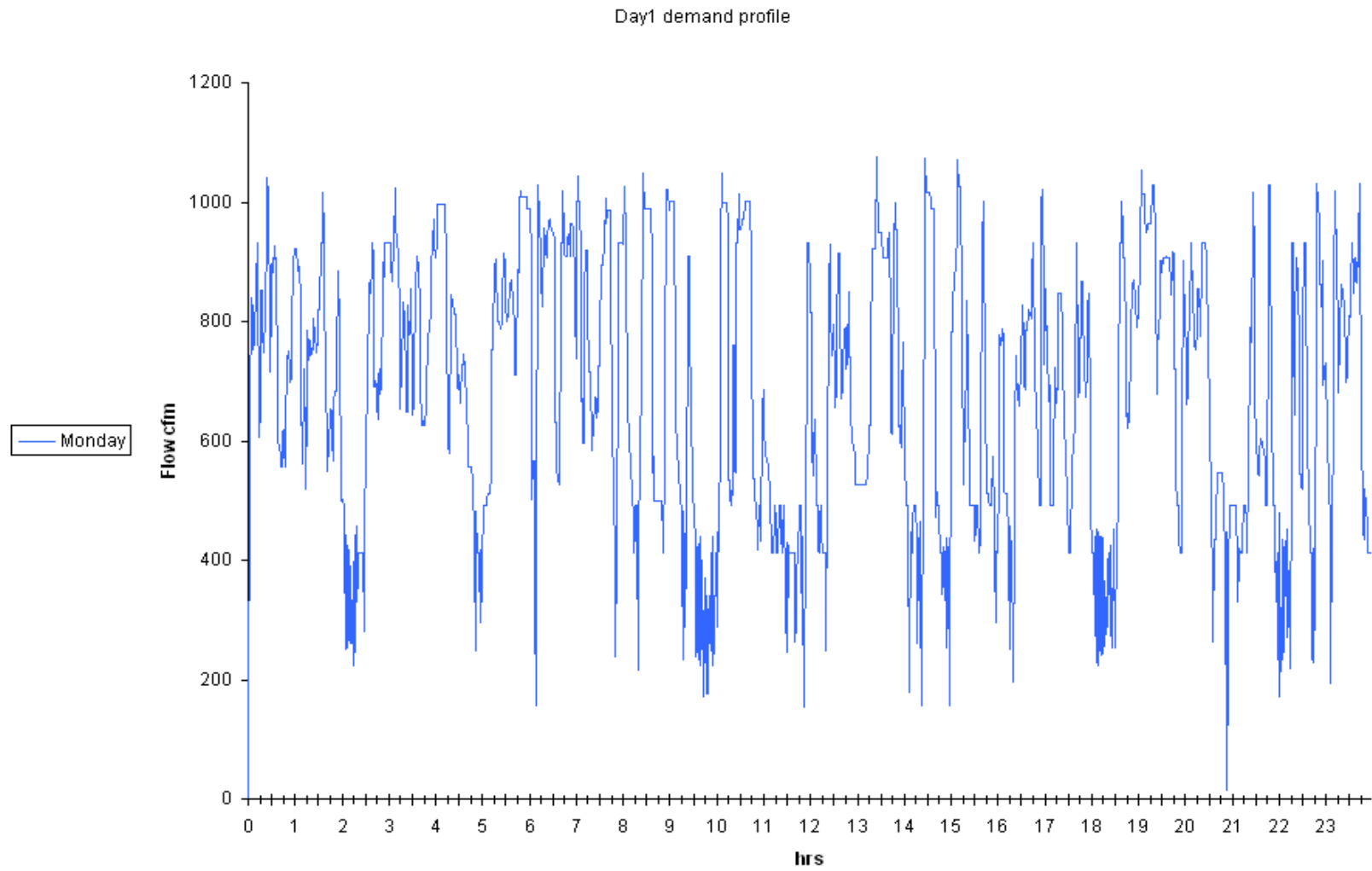
Graphical data for the simulated system

Weekly demand profile – Graph13

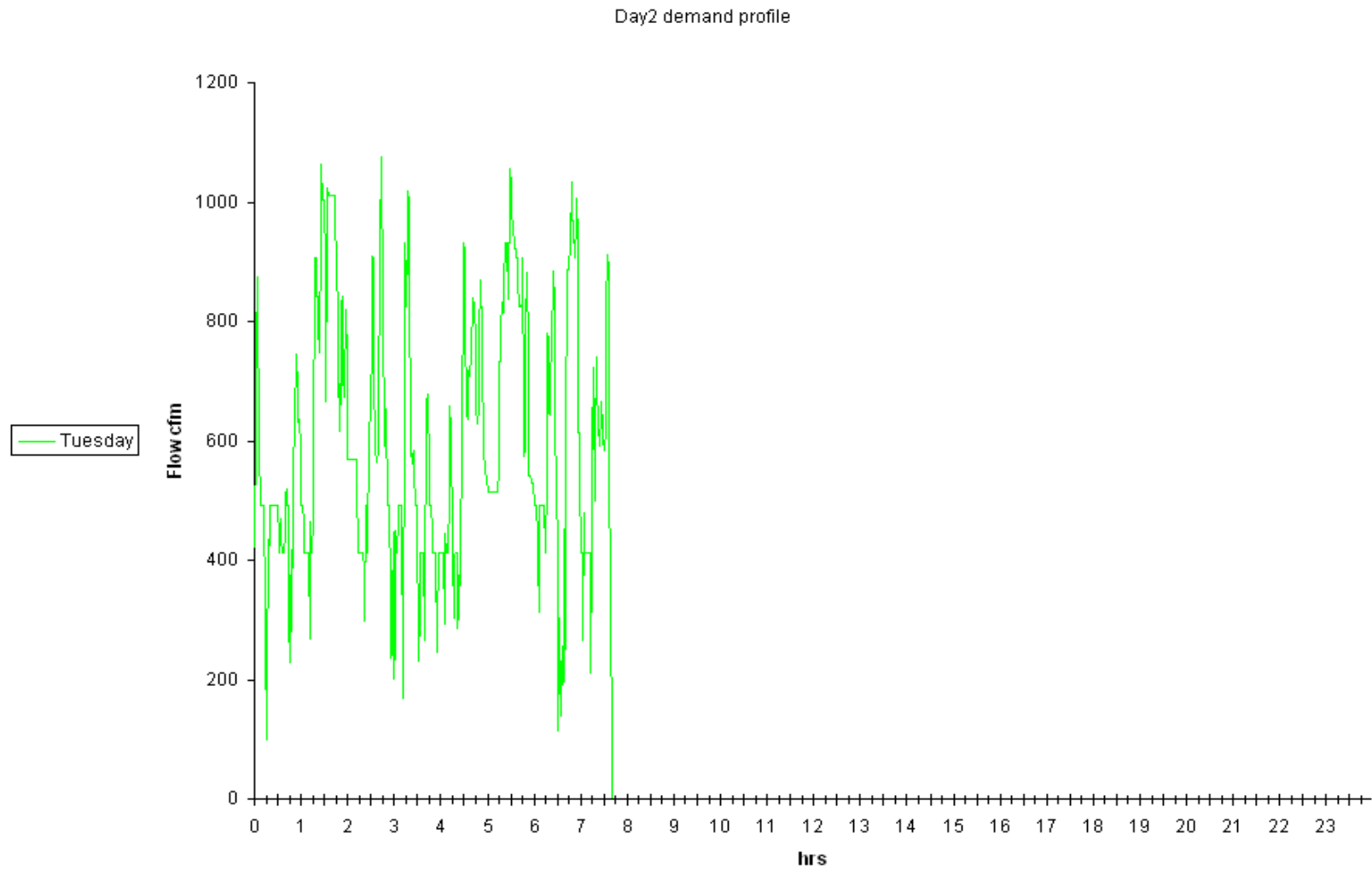
Weekly demand profile



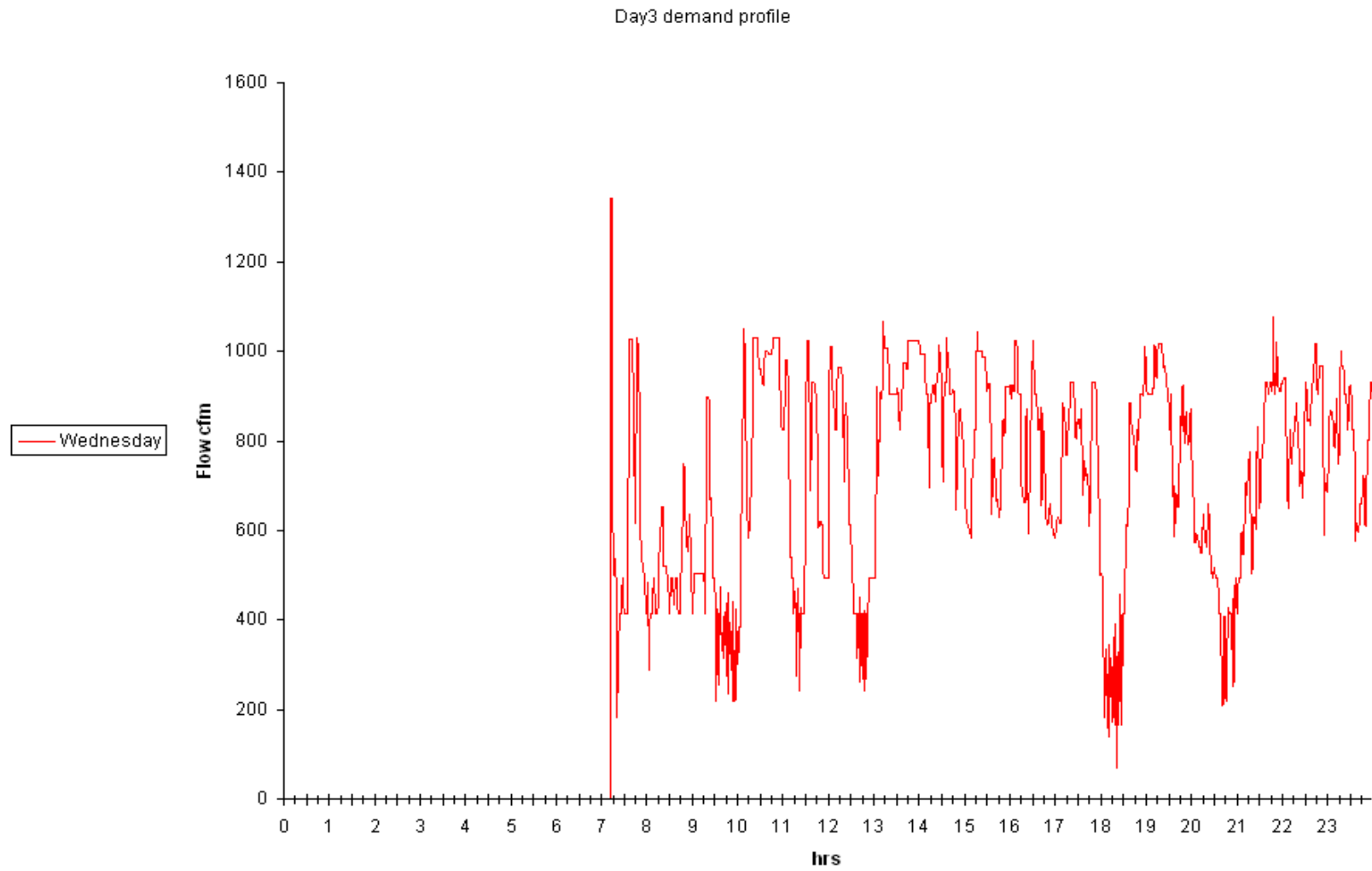
### Monday demand profile – Graph14



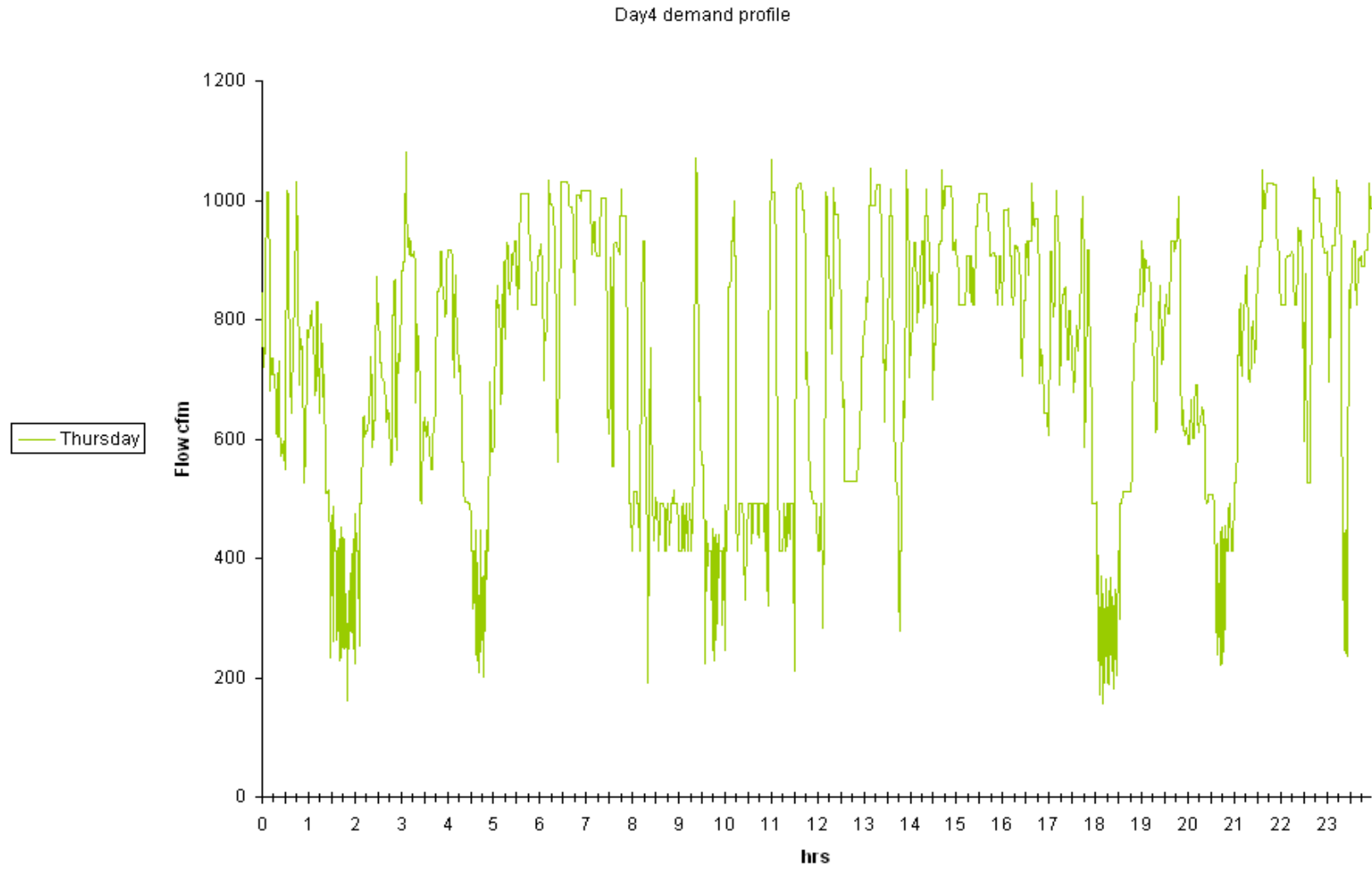
## Tuesday demand profile – Graph15



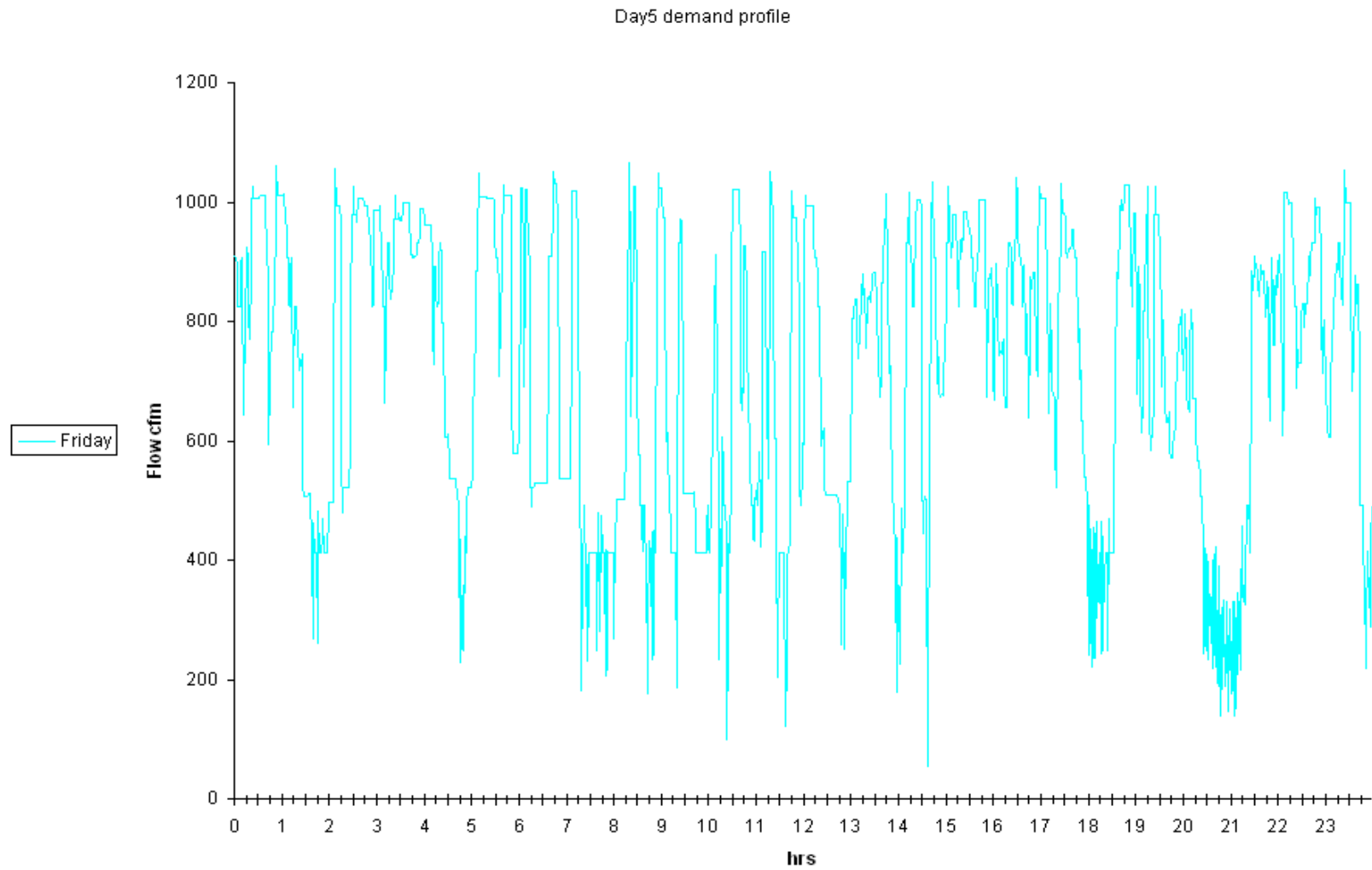
### Wednesday demand profile – Graph16



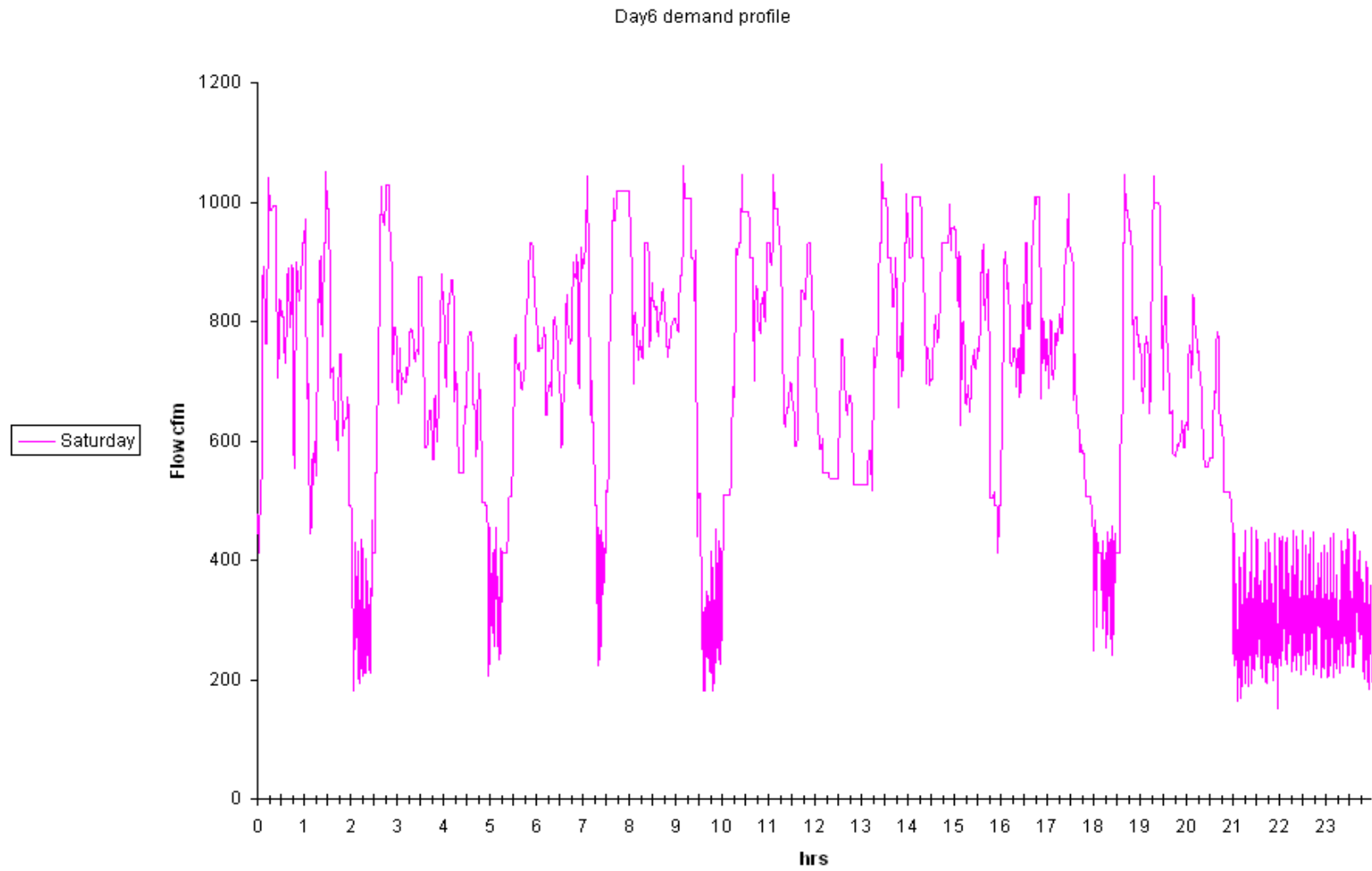
### Thursday demand profile – Graph17



### Friday demand profile – Graph18

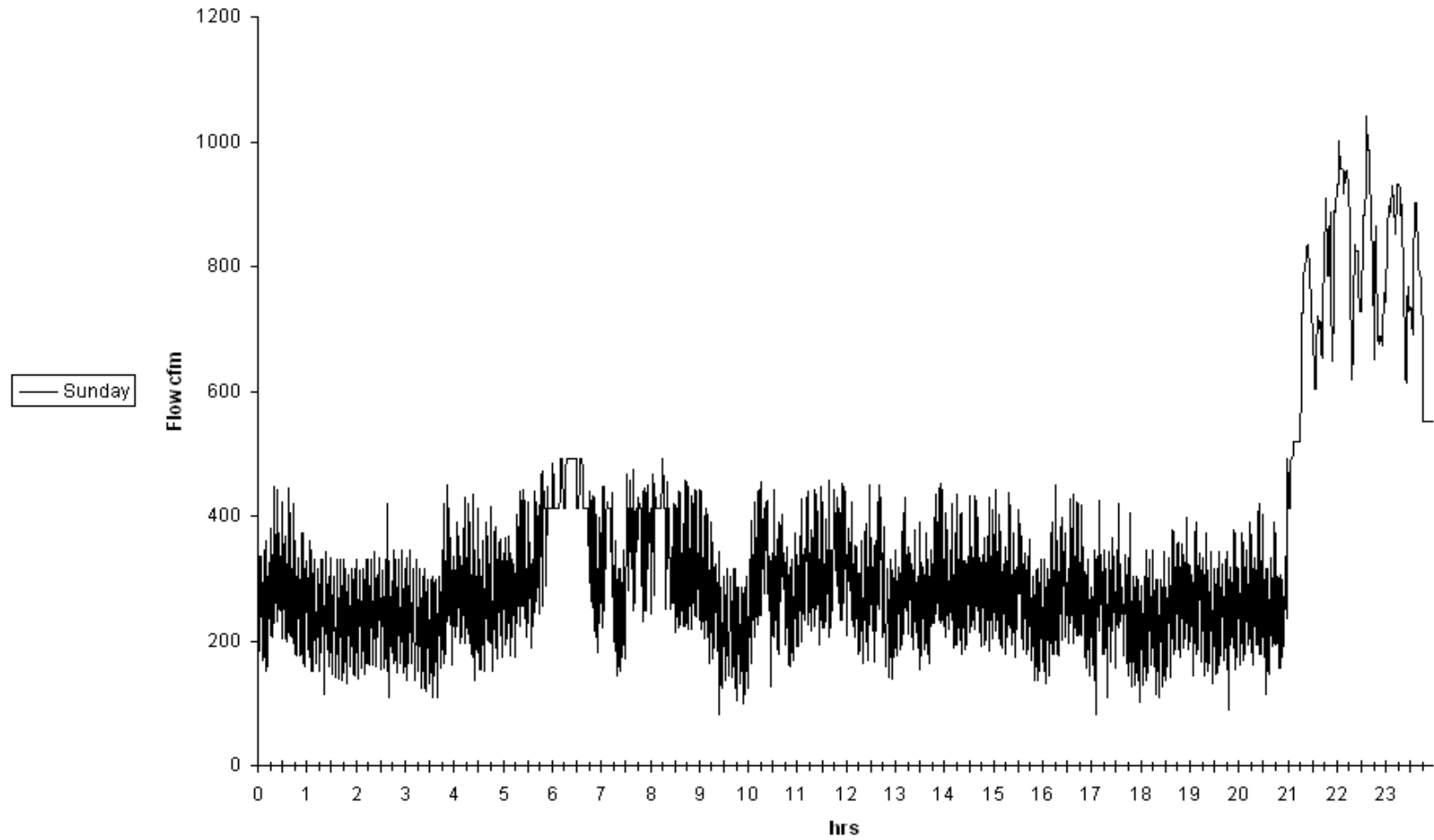


### Saturday demand profile – Graph19



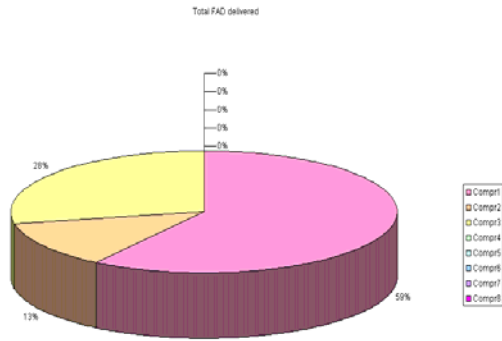
### Sunday demand profile – Graph20

Day7 demand profile

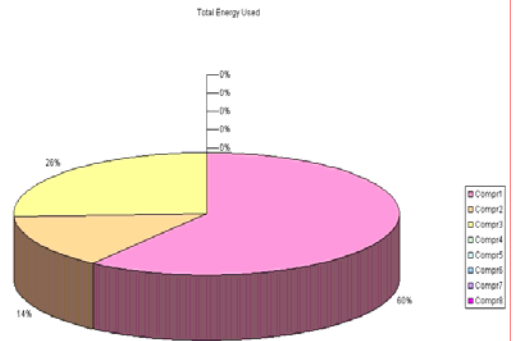


## Energy Use

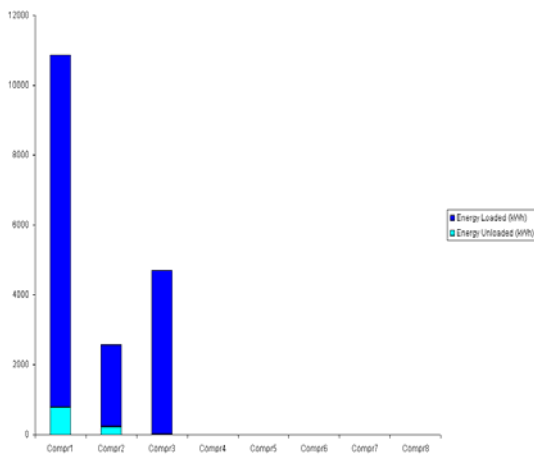
### Overview Total Fad Delivered – Graph21



### Overview total energy consumption – Graph22



### Overview Load/Unloaded energy used – Graph23



### Overview Spec Energy Bar – Graph24

