

# PROPOSED PROCEDURE CHANGE (PPC)

## Summary Section

Proponent	Arjun Pathy	Company	AEMO
Proponent e-mail	<a href="mailto:arjun.pathy@aemo.com.au">arjun.pathy@aemo.com.au</a>	Proponent phone #	03 9609 8983
Affected Gas Market(s)	DWGM		
Short Issue Title	Lower DWGM cumulative price threshold to \$1,400 and adjust clause 5(d)(ii)		

Other key contact  
information [gwc\\_f\\_correspondence@aemo.com.au](mailto:gwc_f_correspondence@aemo.com.au)

VERSION #	DATE
1.0	26 September 2019



## PROPOSED PROCEDURE CHANGE (PPC) – DETAILED REPORT SECTION

### 1. DESCRIPTION OF ISSUE

This PPC proposes substantive changes to the DWGM cumulative price threshold and to clause 5(d) of the Administered Pricing Procedures (Victoria). It also proposes a number of minor clarificatory or editorial changes to the Administered Pricing Procedures (Victoria).

#### 1.1. Lowering of DWGM Cumulative Price Threshold

In 2018, AEMO conducted a review of market parameter settings for the Short Term Trading Market (STTM) and the Declared Wholesale Gas Market (DWGM). Rule 492 of the National Gas Rules (NGR) required AEMO to conduct this review in respect of the STTM, and AEMO considered it prudent to simultaneously consider parameters for the DWGM. The full suite of papers relevant to this review can be found [here](#)<sup>1</sup>.

**Table 1 Market Parameters subjected to review**

Parameter	STTM	DWGM
Market Price Cap (STTM) VoLL (DWGM)	\$400/GJ	\$800/GJ
Administered Price Cap	\$40/GJ	\$40/GJ
Cumulative Price Threshold	\$440/GJ (110 percent of the MPC)	\$1,800/GJ
CPT horizon (STTM) Cumulative price period (DWGM)	7 consecutive gas days	35 consecutive scheduling intervals (7 gas days)
Minimum Market Price (MMP)	\$0/GJ	\$0/GJ

The review was conducted in accordance with the NGR's extended consultative procedure, and responses were received from seven participants<sup>2</sup>. AEMO commissioned Market Reform Pty Ltd to conduct the requisite modelling work, which consisted of analyses of the economically efficient parameter setting for each market under a range of scenarios and market-participant types.

The outcome of this review and associated consultation was that all reviewed STTM and DWGM market parameters would remain unchanged except for the cumulative price threshold (CPT) for the DWGM, which was recommended to be reduced to \$1,400/GJ. Market Reform recommended this change on the basis that the tightening supply and demand conditions in the DWGM meant the \$1,800/GJ CPT provided inadequate risk protection to market participants buying gas.

Although DWGM market prices have softened slightly since the modelling, the changes are not substantial enough to warrant re-modelling. Further, supply conditions are anticipated to remain tight across the east coast in the short to medium term<sup>3</sup>, which indicates that prices are not expected to soften substantially. While the AEMC has proposed some changes to DWGM market operations in its DWGM simpler wholesale price draft determination<sup>4</sup>, these do not suggest changes to the way the wholesale price is determined. Given these market conditions, AEMO believes that wholesale gas market circumstances have not significantly changed since Market Reform's modelling was conducted; as such, further review of the CPT is not required.

<sup>1</sup> <https://www.aemo.com.au/Stakeholder-Consultation/Consultations/Gas-Market-Parameter-Review-2018>

<sup>2</sup> These being: Alinta Energy, CovaU, ERM Power, M2 Energy, Meridian Energy, Origin Energy, and Snowy Hydro.

<sup>3</sup> AEMO, *Gas Statement of Opportunities*, 28 March 2019.

[https://www.aemo.com.au/-/media/Files/Gas/National\\_Planning\\_and\\_Forecasting/GSOO/2019/2019-GSOO-report.pdf](https://www.aemo.com.au/-/media/Files/Gas/National_Planning_and_Forecasting/GSOO/2019/2019-GSOO-report.pdf)

<sup>4</sup> AEMC, *DWGM simpler wholesale price: draft determination*, 5 September 2019

<https://www.aemc.gov.au/sites/default/files/2019-09/Draft%20determination.PDF>



## 1.2. Methodology for market price calculation

AEMO believes that the Administered Pricing Procedures (Victoria) currently employs an operationally complex, imprecise and non-transparent strategy with which AEMO is to calculate the market price in an administered price period if it is unable to use pricing schedules as determined by the Market Clearing Engine. This information is set out in clause 5(d) of the Administered Pricing Procedures (Victoria), in which "Strategy 2" requires AEMO to calculate the market prices "as the average of the published market price for the preceding six months", with AEMO taking into account a range of factors (such as seasons, holidays, and weekends).

Given that Strategy 2 would only be employed if market systems were unable to determine a market price, there are operational restrictions in how complex it may practicably be. AEMO's internal analysis identified three practicable alternatives to the current Strategy 2 that approximate the market price:

- a) Strategy 2 - The cumulative price as of the most recently published schedule, divided by 35.
- b) Strategy 2 - The average of the market prices for the preceding 30 *gas days* at scheduling interval 5 as of the most recently published schedule.
- c) Strategy 2 - The average of the imbalance-weighted average daily price for the preceding 30 *gas days* as of the most recently published schedule.

Of these options, option a) is practicable to implement without system changes for AEMO (AEMO does not believe there are system changes for participants for any option). Option a) is less variable than options b) or c) but may give an estimated market price that is slightly positively biased (on the sample of data used). Options b) and c) mirror, on average, the market price quite closely but are both relatively variable around the market price. More detailed analysis is provided in Attachment B.

AEMO has included option a) in its draft Administered Pricing Procedures as the least-cost, readily implementable solution to ensure that clause 5(d)(ii) is precise and transparent. If participants would prefer options b) or c) due to the lack of these options' positive bias, AEMO will be required to execute system changes to ensure that the information is calculated and stored with sufficient robustness that it can be used even in the event that market systems are unable to determine a market price. These will incur a moderate cost and IT resources may not be available to deliver these changes by 1 July 2021.

If participants were to express a preference for options b) or c), AEMO would also ensure that this value is published in a Market Information Bulletin Board (MIBB) report.

While AEMO believes that clause 5(d) ought to be amended in the interests of making the Administered Pricing Procedures (Victoria) transparent for participants, AEMO also notes that the use of Strategy 2 is a very low-probability event: clause 5(d)(ii) has never been put into effect in the period in which the DWGM has been operating.

AEMO has two questions for participants regarding the proposed changes to this strategy:

1. Does your organisation have a preference for option b) or c) over option a), bearing in mind delay in implementation and the system upgrade costs that would be passed on to participants?
2. If your organisation has a preference for option b) or c) over option a), should the average be calculated over 30 days, 7 days, or some other number?

## 2. REFERENCE DOCUMENTATION

- Wholesale Market Administered Pricing Procedures (Victoria)
- Calculated values for the three options described in Section 1.2 over the past 12 months



### 3. OVERVIEW OF CHANGES

The following changes are proposed to the Wholesale Administered Pricing Procedures (Victoria):

- The definition of the CPT in section 2.2 is changed from \$1,800/GJ to \$1,400/GJ.
- Clause 5(d)(ii) is changed to align with option a) in the above Section 1.2 of this PPC.
- Additionally, some minor clarificatory changes have been proposed to:
  - Section 3, to ensure consistency with Condition 5 of the Gas Scheduling Procedures.
  - Clause 5(a), to allow for schedule republication during an administered pricing period if a constraint is received after publication of the original schedule.

### 4. LIKELY IMPLEMENTATION REQUIREMENTS AND EFFECTS

#### 4.1. Lowering of DWGM Cumulative Price Threshold

AEMO's IT systems will only require minor configuration changes to make the requisite changes. AEMO does not believe there will be any necessary changes to participant IT systems.

#### 4.2. Methodology for market price calculation

The following changes will be required:

- Option a) will require minor changes to AEMO's operational processes.
- Option b) will require system and operational process changes for AEMO as well as changes to MIBB reports.
- Option c) will require system and operational process changes for AEMO as well as changes to MIBB reports.

### 5. IMPACT OF ISSUE NOT PROCEEDING

There are two key implications for participants if the proposed changes do not proceed:

- If the change to the DWGM CPT is not implemented, then market participants may be inadequately protected from prolonged period of very high prices.
- If one of the proposed changes to Strategy 2 under clause 5(d) is not implemented, then Strategy 2 will remain imprecise and non-transparent for participants.

### 6. OVERALL COST, BENEFITS AND MAGNITUDE OF THE CHANGES

#### 6.1. Lowering of DWGM Cumulative Price Threshold

As per the Market Reform report and modelling, the lowering of the CPT will improve risk protection for market participants buying gas. Given that the change to the CPT is not accompanied by a change to the cumulative price period or to the value of lost load (VoLL), there will be minimal impact on market efficiency—i.e. participants are still heavily incentivised to pursue good hedging practices. The CPT remains sufficiently high that a VoLL event could occur without the DWGM's entering an administered pricing period.

#### 6.2. Methodology for market price calculation

Given that Strategy 2 would only be employed in the event that the AEMO is unable to determine the market price by use of the pricing schedules produced by the Market Clearing Engine and is also unable to



calculate the market price through use of Strategy 1, AEMO believes that use of Strategy 2 is a low-probability event, and as such, changes to it are unlikely to materially impact the market. To the extent that the change would have an impact, the change would increase transparency of Strategy 2 for participants.

Given that the change pertains to administered pricing, AEMO believes the change to be *material*.

## **7. CONSISTENCY WITH NATION GAS RULES (NGR) AND NATIONAL GAS OBJECTIVE (NGO)**

AEMO is required to make Administered Pricing Procedures for the DWGM under rule 224 of the NGR. NGR rule 224(1)(b) states that the Administered Pricing Procedures must specify the process by which AEMO will consult with market participants on determining the CPT, and under clause 3A(b) of the Administered Pricing Procedures, AEMO states that it will consult on any changes to the CPT in accordance with Part 15B of the NGR. AEMO will consult on the proposed changes in this PPC in accordance with Part 15B of the NGR.

### **National Gas Objective**

*"The Natural Gas Objective is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas."*

Given the benefits and costs stated in section 6, AEMO believes that lowering the threshold and amending Strategy 2 will satisfy the NGO in terms of the efficient operation use and use of natural gas services for the long term interest of consumers of natural gas with respect to price.

## **8. PROPOSED TIMELINES**

AEMO proposes the following indicative consultation timeline:

- Proposed Procedure Change (PPC) issued 5 December 2019
- PPC responses due 6 January 2020
- Impact and Implementation Report (IIR) issued 31 January 2020
- IIR responses due 28 February 2020
- AEMO Decision issued 27 March 2020
- Effective date of 1 July 2020



## **ATTACHMENT A – DOCUMENTATION CHANGES (SEE SECTION 3)**

Please see the attached track-changes DWGM Administered Pricing Procedures, using option a) from Section 1.2.



## ATTACHMENT B – ANALYSIS OF STRATEGY 2 OPTIONS

AEMO has provided data on what the calculated Strategy 2 values would have been under the three proposed options for the 12-month period 12 October 2018–15 October 2019.

AEMO has further provided analysis of this data for participants' reference.

The mean difference per month between the market price determined by Strategy 2 and the actual market price is given in Table 2 for each of the options presented in Section 1.2 for (where possible) both 7- and 30-day time horizons. As can be seen, all options tend toward overestimating the actual market price, with option b) overestimating by substantially more than any other option.

**Table 2 Mean difference from actual market price by Strategy 2 option and timeframe**

	a), 7 days	b), 30 days	c), 7 days	c), 30 days	c), 7 days
<b>Oct-18</b>	0.22	-0.14	-0.06	-0.04	-0.05
<b>Nov-18</b>	0.23	-0.31	-0.07	-0.34	-0.06
<b>Dec-18</b>	0.41	0.10	0.16	0.12	0.13
<b>Jan-19</b>	0.19	0.03	-0.04	0.14	-0.09
<b>Feb-19</b>	0.29	0.07	-0.06	-0.04	0.02
<b>Mar-19</b>	0.19	-0.23	-0.01	-0.20	-0.11
<b>Apr-19</b>	0.42	0.34	0.48	0.57	0.16
<b>May-19</b>	0.26	0.02	-0.05	0.16	-0.04
<b>Jun-19</b>	0.42	0.03	0.15	0.06	0.10
<b>Jul-19</b>	0.31	0.58	0.21	0.73	0.09
<b>Aug-19</b>	0.20	-0.11	0.14	0.05	-0.05
<b>Sep-19</b>	0.24	0.04	0.00	0.11	0.01
<b>Oct-19</b>	0.13	-0.29	-0.22	-0.36	-0.13
<b>Total</b>	0.28	0.03	0.06	0.10	0.00

The mean variance per month between the market price determined by Strategy 2 and the actual market price is given in Table 3. Options b) and c) are relatively more variable than option a), and the market prices estimated over a 30-day time horizon vary more from the actual market prices than do the market prices estimated over a 7-day time horizon.

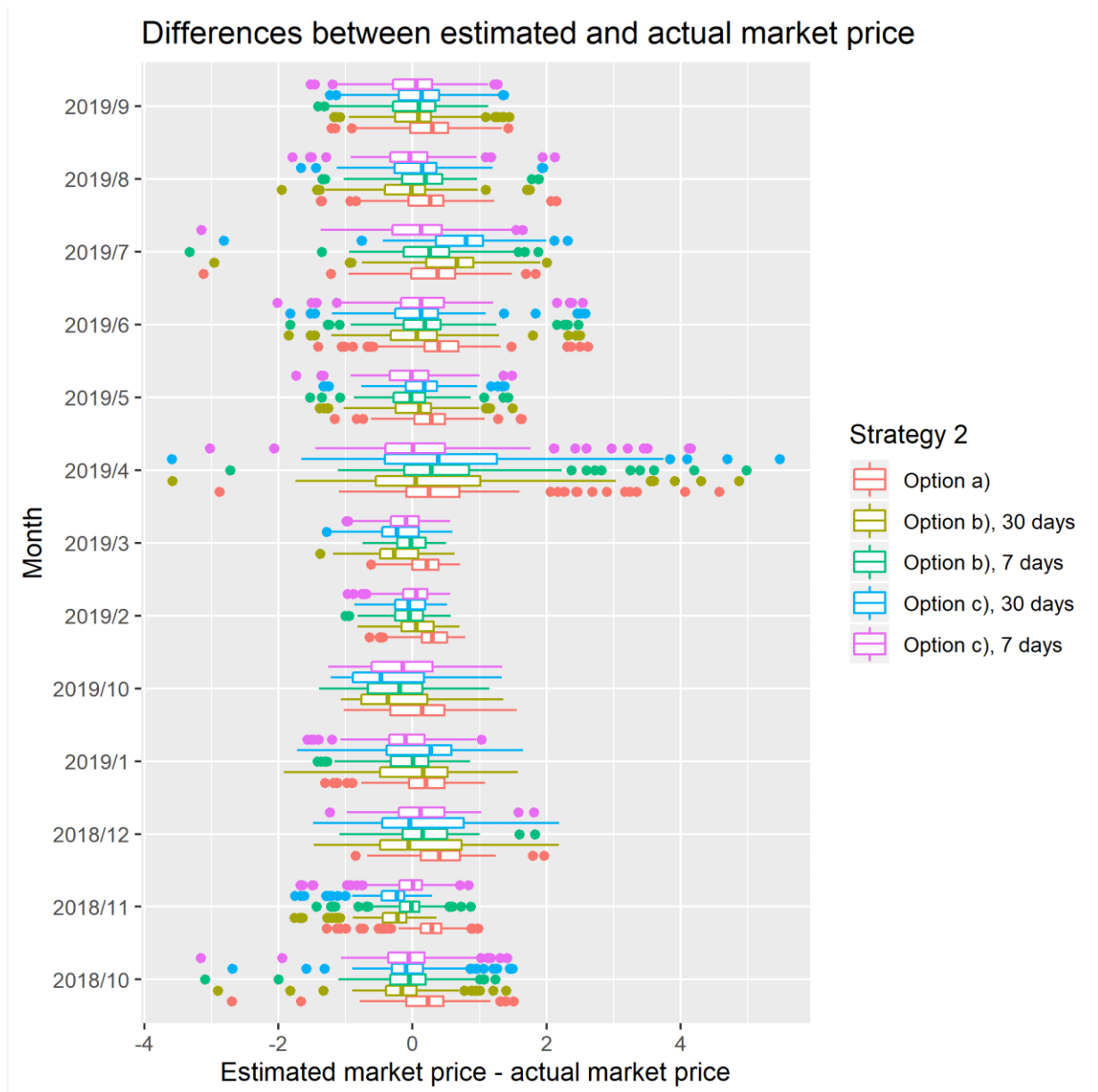
**Table 3 Variance in difference from actual market price by strategy 2 option and timeframe**

	a), 7 days	b), 30 days	b), 7 days	c), 30 days	c), 7 days
<b>Oct-18</b>	0.36	0.36	0.35	0.38	0.41
<b>Nov-18</b>	0.13	0.14	0.13	0.14	0.15
<b>Dec-18</b>	0.20	0.52	0.21	0.53	0.24
<b>Jan-19</b>	0.21	0.43	0.22	0.42	0.24
<b>Feb-19</b>	0.09	0.10	0.10	0.09	0.10
<b>Mar-19</b>	0.08	0.17	0.08	0.16	0.10
<b>Apr-19</b>	0.93	1.59	1.03	1.85	1.05
<b>May-19</b>	0.17	0.21	0.17	0.21	0.21
<b>Jun-19</b>	0.35	0.38	0.36	0.39	0.42
<b>Jul-19</b>	0.35	0.37	0.36	0.37	0.41
<b>Aug-19</b>	0.25	0.25	0.23	0.25	0.28



	a), 7 days	b), 30 days	b), 7 days	c), 30 days	c), 7 days
<b>Sep-19</b>	0.24	0.25	0.26	0.26	0.28
<b>Oct-19</b>	0.30	0.33	0.28	0.36	0.35
<b>Total</b>	0.29	0.45	0.31	0.50	0.33

**Figure 1** Boxplot of differences between estimated and actual market prices

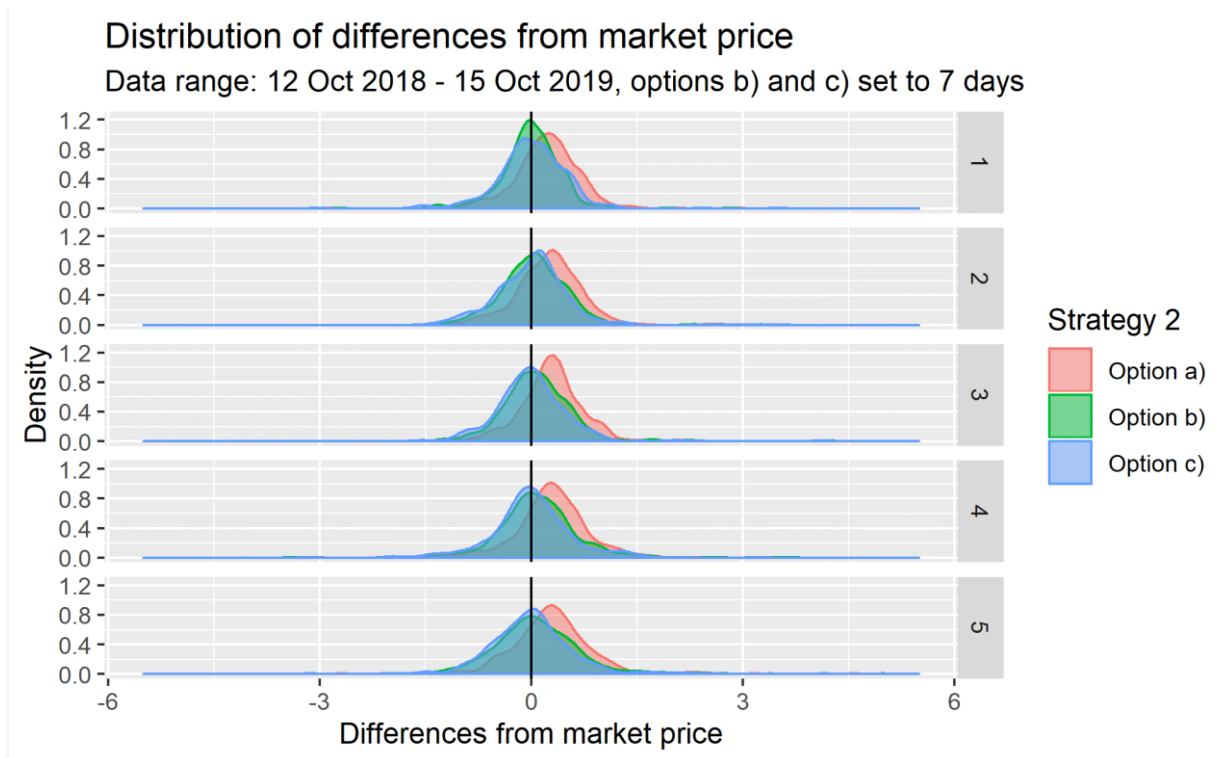


This information is displayed graphically in Figure 1 above and in Figure 2 and Figure 3 overleaf, which show the distribution in differences between estimated and actual market prices with time horizons for options b) and c) set to 7 and 30 days respectively (since option a) is calculated over the preceding 35 scheduling intervals, it is always calculated over a 7-day time horizon). Over the 7-day time horizon, option b) performs best in schedule 1, with option c) clustered marginally closer around the market price in all other schedules. Over the 30-day time horizon, options b) and c) perform near-identically in schedules 1 and 2, with option b) clustered marginally more closely around the market price in schedules 3 through 5.





**Figure 2** Distribution of differences from market price, 7-day time horizon



**Figure 3** Distribution of differences from market price, 30-day time horizon



As such, the choice between different options and then between different time horizons within those options is something of a trade-off between how small and how variable the estimated market prices will be under each option and time horizon. Option a) has the least variable differences from the market price, but that is because it is (consistently) higher than the actual market price. By contrast, options b) and c) are



(on average) relatively accurate, but in any given scheduling interval can vary substantially from the market price.

As can also be seen from Figure 2 and Figure 3, the difference between the various options is not wholly significant—all fall within \$1 of the actual market price a large percentage of the time, as shown in Table 4.

**Table 4 Proportion of schedules where the Strategy 2 options fall within \$1 of the actual market price**

	Option a)	Option b)	Option c)
% of time w/in \$1 of MP	93%	90%	88%

The variance of the estimated prices themselves is substantially lower for longer rather than shorter time horizons, as seen in Table 5 and Table 6 below. This results directly from the fact that 30-day averages will be less sensitive to individual extreme-priced days than will 7-day averages.

**Table 5 Variance in estimated market prices by month**

	a), 7 days	b), 30 days	b), 7 days	c), 30 days	c), 7 days
Oct-18	0.05	0.01	0.07	0.00	0.06
Nov-18	0.06	0.03	0.10	0.03	0.07
Dec-18	0.22	0.03	0.18	0.03	0.21
Jan-19	0.10	0.05	0.03	0.05	0.11
Feb-19	0.01	0.01	0.02	0.00	0.02
Mar-19	0.11	0.01	0.12	0.01	0.10
Apr-19	0.94	0.08	0.90	0.06	0.99
May-19	0.06	0.05	0.04	0.09	0.07
Jun-19	0.07	0.01	0.05	0.00	0.05
Jul-19	0.11	0.14	0.15	0.12	0.15
Aug-19	0.04	0.01	0.06	0.00	0.07
Sep-19	0.03	0.01	0.04	0.01	0.04
Oct-19	0.09	0.01	0.08	0.00	0.09

**Table 6 Variance in estimated market prices across 12 Oct 2018–15 Oct 2019**

	a), 7 days	b), 30 days	b), 7 days	c), 30 days	c), 7 days
Variance	0.60	0.43	0.59	0.43	0.59