

### DAY 6 – PART 3

**Date:** 21 August 2017

**Present:** Mr Veitch, Veitch Lister Consulting (**VEITCH**)

Nick Tweedie (**TWEEDIE**)

Nick Wimbush (**VEITCH**)

Kate Morris (**K MORRIS**)

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1. TWEEEDIE Okay, Mr Tweedy ... right, Mr Veitch, can I start by asking you to confirm the date of your expert witness statement. On the front, it says "August 2017". Can you confirm it was prepared prior to 2 August, when it was circulated?
2. VEITCH Um, prior to the date that it was circulated?
3. TWEEEDIE Yep.
4. VEITCH Yes, it was.
5. TWEEEDIE Okay. Do you know exactly when in August? Was it the 1<sup>st</sup>?
6. VEITCH Um, I'd have to look at the calendar.
7. TWEEEDIE Alright. Now, Mr Veitch, just in terms of your ... in your role in the company, Veitch Lister Consulting, you've repeatedly referred to it as your firm?
8. VEITCH Yep.
9. TWEEEDIE You've got an equity stake in the company?
10. VEITCH I do. Right, yep.
11. TWEEEDIE So, you get the profits from the company as well as some sort of salary?
12. VEITCH Yep. Yep, that's correct.
13. TWEEEDIE And it's obviously a matter of ... this is a matter of fairly large significance to your company, isn't it?
14. VEITCH Yeah, this is a significant project for us.
15. TWEEEDIE And you would agree, wouldn't you, that a finding by this Committee that there are substantial flaws or problems with the modelling you've undertaken would be very ... a very significant problem for your company?
16. VEITCH Uh, I'm not sure significant. I think there's ... if you take out the word "significant", I agree it would be a problem if there are faults.
17. TWEEEDIE If it had a real potential to affect your ability to win future work from the State government?
18. VEITCH Yep, that's correct.

19. TWEEDIE So, knowing that, it's not really surprising that your evidence is that you have a high degree of confidence in the reasonableness of the strategic model, is it?
20. VEITCH If you're suggesting that there's an incentive for me to say that I agree that, of course, you know, this is my firm, that incentive exists. Nevertheless, it is my view that what we've done is reasonable.
21. TWEEDIE Yes. Alright. You have an incentive to say that and you're not suggesting, by any stretch of the imagination, that this is an independent review of the value of your model?
22. VEITCH It's not independent in the sense that, yes, I work for this firm and it is my firm, yep.
23. TWEEDIE Alright. Now, can you turn to page 36 of your expert witness statement?
24. VEITCH Sure.
25. TWEEDIE And what's contained there, while you're looking it up, is the declaration that you've made to the Committee.
26. VEITCH Yep.
27. TWEEDIE Do you understand what that means?
28. VEITCH Can you just remind me the page number?
29. TWEEDIE Page 36 under the heading "Declaration". "I have made all the enquiries I believe are desirable and appropriate".
30. VEITCH Yep.
31. TWEEDIE "But no matters of significance which I regard as relevant have, to my knowledge, been withheld from the enquiry and Advisory Committee".
32. VEITCH Yep, that's correct.
33. TWEEDIE Do you appreciate the significance of that statement?
34. VEITCH I believe I do.
35. TWEEDIE Okay. Now, you haven't suggested anywhere in your report that that declaration that you've made to tell the Committee everything of significance and to withhold nothing relevant, is subject to any limitations by reason of a confidentiality agreement you have with any person?
36. VEITCH No, I haven't. I haven't. I don't believe those confidentiality agreements affect the ... whether or not this statement is true. [*Talking together*]. Those confidentiality agreements don't prevent me from taking or disclosing all the things that I think need to be disclosed.
37. TWEEDIE Okay. Well, what do they prevent you from disclosing?
38. VEITCH Well, there are reports that were produced as part of the business case and

materials that were produced, materials we would've accessed, you know, as part of the business case process, which I can't disclose. Nevertheless, this is the EES, and the modelling we did there is the same modelling that we're doing here, and I have been released to talk about all of the issues that were raised with the modelling during the business case.

39. TWEEDIE Sorry, you've been released by who?
40. VEITCH By the lawyers.
41. TWEEDIE The lawyers?
42. VEITCH Well, I don't know if "the lawyers" is the right term, but Chris has personally told me that I'm allowed to talk about any concerns that were raised with the modelling during the business case.
43. TWEEDIE Okay. So that's Mr Townsend?
44. VEITCH Yes.
45. TWEEDIE And did he tell you that before you wrote your expert witness statement or afterwards?
46. VEITCH After.
47. TWEEDIE Alright. So at the time you wrote your expert witness statement, did you think that you were constrained from giving the Committee any information about the business case?
48. VEITCH Um, no, I did not feel constrained at that point ...
49. TWEEDIE Well ...
50. VEITCH ... without being told that.
51. TWEEDIE It's the case, isn't it, that nowhere in your report do you mention the fact that your firm was involved in the business case?
52. VEITCH No, that's true. I, at that time, did not see it as relevant.
53. TWEEDIE It was irrelevant, in your view, that your firm had also prepared modelling for the purpose of the business case, is that correct?
54. VEITCH That is how I viewed it at the time, yes.
55. TWEEDIE Well, why's it relevant now?
56. VEITCH Um, the only reason I've raised the business case is that I'm addressing not only the issues raised in public submissions, and the issues raised in public submissions were the issues that I addressed in my expert report. In this presentation, I've addressed a broader range of issues, including those issues that were raised during the business case.
57. TWEEDIE So, tell us again why you thought that your participation, and your firm's

participation, in producing modelling for the business case was irrelevant at the time you wrote your expert witness statement?

58. VEITCH So, my understanding, correct or otherwise, was that the purpose of this report was really to address any issues that'd been raised in the public submissions.
59. TWEEDIE You didn't think that the purpose of your report was to provide the Committee with all the information it needed to assess, as you've said at the end of your last slide, whether or not the modelling your firm has undertaken is something in which they can have a high degree of confidence?
60. VEITCH Well, I think none of the issues that were raised in the business case changed my opinion that the forecasts and the approach taken were reasonable. So, in terms of making the statement that I think it's reasonable what we've done, the issues raised in the business case did not change that view, so I didn't feel it necessary to present them in this report.
61. TWEEDIE Well, you didn't even tell the Committee that there were issues raised about fundamental aspects of the modelling by an independent peer reviewer during the business case.
62. VEITCH No, I did not.
63. TWEEDIE You didn't tell them that in your evidence?
64. VEITCH No, no, I'm not hiding from it, though.
65. TWEEDIE So, you kept that quiet when you prepared your witness statement?
66. VEITCH Yeah. To be honest, I ... that was just ... I thought the purpose of that report was to deal with the public submissions.
67. TWEEDIE Well, let's have a look and see what the ... you've said in your report before. Let's see what you were asked to do. Can you go to your instructions letter? That's in your expert witness report with Clayton Utz.
68. VEITCH I actually don't have a copy of that in this PDF that I'm looking at. Do you mind if I get a copy of it, please?
69. TWEEDIE Alright. Well, let's not worry about it then, if you don't have a copy.
70. VEITCH Sure. Yep.
71. TWEEDIE Just so we understand, you're telling the Committee now that when you wrote your evidence, you didn't understand that it was your job to identify criticisms that have been made of the model by an independent peer reviewer during the business case?
72. VEITCH No, I did not.
73. TWEEDIE And you were content to not even mention the fact that there had been an independent peer reviewer?

74. VEITCH Yeah, I did not see it as relevant at that point in time.
75. TWEEDIE Okay. Alright. So, let's just unpack this instance about the independent peer reviewer. So, as I understand it, you were engaged by the Department during the business case to conduct traffic modelling, is that right? You have to speak up, I'm sorry.
76. VEITCH Yes, that's correct. Yep.
77. TWEEDIE Okay. And the modelling that you prepared, which included modelling of the project, was then given to a person who was an independent peer reviewer ...
78. VEITCH Yes, correct.
79. TWEEDIE ... and an independent expert in transport modelling?
80. VEITCH Correct.
81. TWEEDIE And that was a Mr Allard?
82. VEITCH Yes, correct.
83. TWEEDIE Now, you've now told the Committee, not having put it in your report, that Mr Allard was critical about some fundamental aspects of the modelling, wasn't he?
84. VEITCH Yep, that's correct.
85. TWEEDIE Why's it relevant now, but it wasn't relevant at the time you wrote your report?
86. VEITCH It just turns on what I thought the purpose of this presentation was compared to what I understood the purpose of that report was.
87. TWEEDIE Well, when did your understanding of this process change? When did it change from being a situation where you didn't need to tell the Committee that an independent person had raised fundamental issues with your modelling approach, to one where it now is relevant?
88. VEITCH Um, during the course of preparing for today, I've been informed about what the purpose of today is and that includes dealing with issues beyond the public submissions, so I've been happy to discuss them.
89. TWEEDIE It wasn't the fact that a Mr McDougall gave evidence on 3 August and publicly disclosed the fact, which is not referred to in your statement or the EES, that this had occurred, that an independent person engaged by the Department, had raised significant issues with your modelling?
90. VEITCH It's not in response to that, no.
91. TWEEDIE Not in response to that?
92. VEITCH No, no, no. Absolutely not [*talking together*].
93. TWEEDIE [*Talking together*]. It's just a coincidence?

94. VEITCH I'm obviously aware that Mr McDougall's come out publicly criticising certain things. The issues he's raising are based on falsehoods, so ...
95. TWEEDIE Well, the issues he's raising is that an independent review of your model as opposed by someone who's got a direct financial interest in its outputs, criticised the model at a very early stage for certain aspects of it. Correct?
96. VEITCH Correct.
97. TWEEDIE Right. Was that done in writing?
98. VEITCH I believe there was a report.
99. TWEEDIE Did you receive copies of that?
100. VEITCH Um, I believe our company has received copies, yes.
101. TWEEDIE Well, you can provide that to the Committee, can't you?
102. VEITCH I could. I ... well, actually ...
103. TWEEDIE Why didn't you [*talking together*] ...
104. VEITCH No. No ... actually it's probably under confidentiality.
105. TWEEDIE Well, no sorry, it's not because you've given evidence about it. So you've got a copy of it, is that right?
106. VEITCH I do have a copy of it.
107. TWEEDIE And the only reason you couldn't provide it to the Committee would be some sort of issue of confidentiality?
108. VEITCH That's correct. I'm happy to ...
109. TWEEDIE Right. So, physically, you've confirmed you've got it?
110. VEITCH Yep.
111. TWEEDIE Why didn't you give it to 'me today?
112. VEITCH Um, I was quite clear in my presentation early on that confidentiality prevents me from providing all of the materials we accessed during that project. Nevertheless, I am free to talk about the issues that were raised, and I've been open about those issues.
113. TWEEDIE So, you're free to talk about the issues?
114. VEITCH Yep.
115. TWEEDIE You're just not free to provide people with what the criticisms were? All you'd do is give them a summary of what you would like them to think the issues were, is that right?
116. VEITCH Um, I presented what I believe is an unbiased view of what issues were raised. I am still bound by confidentiality, I'm not in a position to release that report [*talking*

*together*]. Until I'm released, I will not be releasing it.

117. TWEEDIE Well, who do you owe this obligation of confidentiality to?
118. VEITCH To the State of Victoria.
119. TWEEDIE I see. And you're not prepared to produce this material, you say?
120. VEITCH I'd have to take that question on notice. I don't ... you know, I'm not in a position to say whether I can or cannot provide that report.
121. TWEEDIE Well, let me tell you this ... let me ask you this: Let's leave aside the issue of confidentiality, do you agree that the material within the documents provided by the independent peer reviewer are relevant?
122. VEITCH They are relevant, I agree. And that's why I've presented them in this presentation.
123. TWEEDIE And they would also assist this Committee to understand better what an independent person says about the suitability of your modelling for the task that's been undertaken.
124. VEITCH Sure.
125. TWEEDIE Now, the issues that the independent ... now, this ... can you confirm that independent peer reviewer was a Mr Allard?
126. VEITCH Yes, I [*talking together*] ...
127. TWEEDIE A Mr John Allard?
128. VEITCH Yes.
129. TWEEDIE And he's a very experienced and well-regarded independent Traffic Engineer based in New Zealand.
130. VEITCH Yeah, I think he's well-regarded.
131. TWEEDIE And you've dealt with him?
132. VEITCH Yeah, I have, yes.
133. TWEEDIE Okay. He never signed off and said, "I accept your position", did he?
134. VEITCH It's true that there was an ongoing difference of opinion in relation to whether or not the model loops back through the second step, if you remember that slide?
135. TWEEDIE Yep.
136. VEITCH So that matter, there remained a difference of opinion. I believe all the other matters that were raised were addressed to his satisfaction.
137. TWEEDIE Right. But the issue that is the difference between adopting a model which has ... let me just take a step back. The issue was ... is that the Zenith model uses what's known as a single-distribution approach.

138. VEITCH Correct.
139. TWEEDIE And you've explained that, haven't you?
140. VEITCH Yes.
141. TWEEDIE So it's an approach that, in simple terms, does not allow a person to change their destination in response to congestion?
142. VEITCH In response to congestion, yes. But it will allow them to change their destination response to the project.
143. TWEEDIE It is seen that a person will continue to use the same route no matter how much more congested the route gets or how much longer it takes to get there. They'll just do the same route but at a different time?
144. VEITCH No, that's not quite true. That's not quite true. There are other levers [*talking together*] ...
145. TWEEDIE Can you tell me what it does?
146. VEITCH So, within the model, it will assume that they will continue to make the trip between that origin and destination. It does not force them to take a particular route or to take a particular mode, so the person is free to switch from car to public transport. Our forecast of public transport usage are significant. We forecast public transport usage increasing from 10% to 14% by 2031. And it also allows them to change the route that they're taking, so it does not force them to take that same route.
147. TWEEDIE But it assumes they do?
148. VEITCH No, no, no, it does not assume that they would take the same route.
149. TWEEDIE Okay. Does it assume that they will not change their destination?
150. VEITCH That's correct.
151. TWEEDIE Okay. So if the person's going from A to B, and the route from A to B in the future becomes horribly congested, your model assumes they'll still go to B rather than C?
152. VEITCH Yeah, and I should be clear here. There are certain bounds ...
153. TWEEDIE Is that correct, first?
154. VEITCH That is correct.
155. TWEEDIE Thank you.
156. TOWNSEND Can you let him be clear. It's ... this is .. we're trying to make notes and no doubt you are Mr Chairman and it would assist if the witness can just explain the answer as he goes for our notes rather than be cut off with.
157. TWEEDIE Well, he can explain them now, because I just wanted to get "yes, that's correct" and now you can explain.



158. VEITCH        Yep. Sure, sure. So, there are obviously bounds within which this assumption is reasonable. Using this approach to forecast demand through to 2,100 might not be a reasonable thing. I think within the bounds that we're using it, it is a reasonable assumption, particularly from a planning perspective. What it really ...
159. TWEEDIE      Mr Veitch, I have to stop you because I didn't ask you whether you thought it was a reasonable assumption.
160. VEITCH        Sure.
161. TWEEDIE      I just asked you what it did, okay?
162. VEITCH        Sure.
163. TWEEDIE      So now, can I suggest to you that the different approach and the more ... by far, the more common approach using four-step models, is ... it's called loop-through distribution, is that correct? Again, you're nodding.
164. VEITCH        That is the alternate approach.
165. TWEEDIE      And it's by far the most common approach, isn't it?
166. VEITCH        I wouldn't say it's by far the most common.
167. TWEEDIE      Is it the more common than your approach?
168. VEITCH        I'd say it is more common but I wouldn't say it's by far.
169. TWEEDIE      Which other major traffic modelling program, other than your company's unique proprietary model, uses the single-distribution approach?
170. VEITCH        So, I'm aware that other consultancies make similar assumptions. These are not the only two possible assumptions. I've seen companies assume that the effects that you're referring to where congestion affects changed destinations which people choose. It might be lagged by 10 or 15 years, which is the kind of period that we're talking about, through to 2031. The Sydney Government model used to work in this way as well, so it's by far ... it's by no means the case that we're the only people taking steps like this.
171. TWEEDIE      Hang on, you just said the Sydney one used to.
172. VEITCH        Yep.
173. TWEEDIE      Doesn't anymore?
174. VEITCH        I ... to be honest, I don't know what it's currently doing, so [*talking together*] when I say used to, I mean ...
175. TWEEDIE      Can you name for me ...
176. TOWNSEND     Just ... you said "I mean". Can we finish the sentence so can see what he means?
177. VEITCH        So, what I mean is in the late 2000's when I had discussions with people in the New South Wales Government in relation to their model, they confirmed that they were

doing things in a similar way.

178. TWEEDIE But you don't know if they still are?
179. VEITCH No, I don't.
180. TWEEDIE So, are you able to name a single traffic model in use in the State of Victoria, that uses the single-distribution approach, other than yours?
181. VEITCH No.
182. TWEEDIE Now, there is another traffic model available ... strategic traffic model available for use in the State of Victoria, isn't there?
183. VEITCH There is.
184. TWEEDIE And it's the VITM model developed by the State government, which has been in use since the early 2000's.
185. VEITCH That's correct.
186. TWEEDIE And that model, unlike your model, that model uses the loop-through distribution approach.
187. VEITCH That's correct.
188. TWEEDIE And that's the approach Mr Allard told you was the preferable approach.
189. VEITCH That's correct.
190. TWEEDIE And you rejected it?
191. VEITCH Yes, we have had a difference of opinion.
192. TWEEDIE Now, would you agree that the State of Victoria is fortunate in that it had access to two different four-step travel models?
193. VEITCH I think it is a good thing that two different models exist.
194. TWEEDIE Do you agree the State of Victoria was fortunate in that it had access to both those models to conduct modelling for this project?
195. VEITCH Um, I'm not sure about the word "fortunate" but it is a good thing that the State has access to different transport models.
196. TWEEDIE You wouldn't use the word "fortunate"?
197. VEITCH Well, I don't know. The word "fortune" implies luck. It is a good thing for the State that it has ...
198. TWEEDIE Okay. Do you agree that much of the value to the State in having access to these models derives from their differences?
199. VEITCH In some cases, yes. I think, for example, there have been cases where erroneous forecasts have been made in the past, I put some examples up on the screen before. That kind of risk is mitigated by having more than one type of model, and there

have been cases where the outputs of our model were then compared with the outputs of the VITM model, and that may lead to a detailed investigation of the reasons for the differences and that does lead to a better understanding of the project and the strengths and weaknesses for each model. So I think it is a good thing.

200. TWEEDIE Okay. That's because travel forecasting is an uncertain science, and having different approaches to modelling tends to bring about greater transparency regarding key assumptions and methodologies by providing a point of comparison?
201. VEITCH Correct.
202. TWEEDIE And if the two models produce similar results, it provides reassurance? Correct?
203. VEITCH Correct. I think ...
204. TWEEDIE If they produce different results, well then, you can go and work out ... it can lead to investigation of the causes of the difference?
205. VEITCH Yep, that's correct.
206. TWEEDIE And it might highlight assumptions and uncertainties that would otherwise be ignored?
207. VEITCH Correct.
208. TWEEDIE Now, would you agree that, for a project of the significance of this one, it's important that the risks associated with traffic forecasting be reduced as far as possible?
209. VEITCH I think as far as possible implies no other constraints. Obviously there are other constraints in place: time, you know, staff, resources, money, so, I think it is, of course, good to reduce risk.
210. TWEEDIE Yes.
211. VEITCH As far as possible, I don't think I can agree with that.
212. TWEEDIE Well, I wanna make this clear, I'm not referring to the limitations in your company.
213. VEITCH Oh, sure. Sure.
214. TWEEDIE As far as the State of Victoria is concerned, it would be important in the context of a project like this to reduce the potential errors associated with traffic modelling as far as possible?
215. VEITCH All other things being equal, that would be a good thing, yes.
216. TWEEDIE And do you agree that the best way of doing that would be to compare and contrast and make available the results of modelling from two different systems adopting different approaches?
217. VEITCH Yep, that's a reasonable thing.

218. TWEEDIE And that hasn't been done in the EES, has it?
219. VEITCH In the EES, no.
220. TWEEDIE Okay. So, you'd agree that the information presented in the EES presents, and is based entirely on your model outputs?
221. VEITCH Correct.
222. TWEEDIE And not on any other model that adopts a different approach?
223. VEITCH Correct.
224. TWEEDIE And, in fact, there's no reference whatsoever to this alternative approach, is there?
225. VEITCH No, there's not.
226. TWEEDIE There's no reference in any of the Veitch listed documents to this alternative approach to modelling, in other words, using a traffic model that does not employ the single-distribution approach but uses the loop-through distribution approach?
227. VEITCH No, that's correct.
228. TWEEDIE Now, would you agree with me, Mr Veitch, that, at least from a theoretical perspective, both those two approaches, loop-through distribution and single distribution, have their strengths and weak ... limitations?
229. VEITCH I would agree.
230. TWEEDIE Would you agree that loop-through distribution, which is the mode you don't use, is the more theoretically natural of the two?
231. VEITCH I agree.
232. TWEEDIE Do you agree single-distribution is less natural but what you've described as pragmatic?
233. VEITCH I agree.
234. TWEEDIE Do you agree there's not enough evidence to conclusively favour one approach over the other?
235. VEITCH I'd agree that both approaches could be plausible.
236. TWEEDIE Do you agree that there is not enough evidence to conclusively favour one approach over the other?
237. VEITCH Conclusively, no. But conclusively is a strong word. We ...
238. TWEEDIE Not a word you'd use?
239. VEITCH Sorry?
240. TWEEDIE Not a word you would use?
241. VEITCH Um, I ... I'm guessing I have used that word. I think there are ...

242. TWEEDIE You're guessing correctly.
243. VEITCH [*Laughs*]. There are strengths and weaknesses in both approaches.
244. TWEEDIE Right.
245. VEITCH And the approach we're taking produces results that match what we actually see in the real world. That's the reason that we take the approach that we do. There are also limitations in these models, which can cause problems and we're cognisant of those limitations in choosing the approach that we do.
246. TWEEDIE Would you agree that both approaches should be considered legitimate approaches until new evidence suggests otherwise or until better methods emerge?
247. VEITCH Yeah, I would agree.
248. TWEEDIE And would you agree that in those circumstances, that again, it would be important, given that neither is correct, neither can be demonstrated to be the correct approach, that it would be reasonable to adopt both approaches to a project of this significance and compare the results?
249. VEITCH I think in an ideal world, yes.
250. TWEEDIE Right. Well, can you think of anything, other than cost, which would've prevented that happening in this case?
251. VEITCH Well, I think, in general, having two numbers, while it is up to a point useful to have two different estimates, I think having two different estimates lets you investigate the reasons for the differences and build confidence in one model or the other. That does not necessarily mean that you would eventually present both estimates in a report such as this.
252. TWEEDIE Well, let me just see if I can impact that. We've agreed that neither approach is correct. We've agreed that for different approaches ... for two models you might get two different figures. Again, you're nodding.
253. VEITCH I am nodding, yes. I agree.
254. TWEEDIE Do you agree with both [*talking together*]?
255. VEITCH Yes.
256. TWEEDIE Do you agree that, if we had both those figures, we could make a more educated view as to which figure should be planned for?
257. VEITCH They would produce different alternative futures, much as adopting different population forecasts would produce different alternative futures.
258. TWEEDIE I see. But, again, I want you to explain to me why, if your view is that neither is correct, why we would only adopt one?
259. VEITCH Modelling ... no model is correct. You could apply this ... I mean, where would you stop? You could apply ten different models, none of which is correct, and that might

be even better than applying two. Why not apply ten? So, I think, you know, all models have limitations

260. TWEEDIE I see. Alright. Well, in fact, it's the case, isn't it, that even the Zenith model can be modified to adopt a loop-through distribution approach?
261. VEITCH Correct.
262. TWEEDIE So, your own model could've been used to adopt the approach recommended by the independent peer reviewer?
263. VEITCH Correct.
264. TWEEDIE But you declined to do that?
265. VEITCH We've tested it and we've looked at the results, we've evaluated the sensibility of the forecasts.
266. TWEEDIE I see. You've tested it?
267. VEITCH Yes.
268. TWEEDIE So you have actually done, also, forecasts using the loop-through distribution approach?
269. VEITCH That's correct.
270. TWEEDIE Okay. Now, where in the EES do I find ... or in your evidence, do I find a statement that you've done that?
271. VEITCH There's no statement in the EES that says that.
272. TWEEDIE Where in your EES are those figures presented?
273. VEITCH They're not.
274. TWEEDIE Right. I might, if I can, just show you this document, Mr Veitch. The document I'm gonna show you is a document that we requested be provided to us, and it's entitled "Review of travel forecasting methodologies - Draft internal working document - September 2015".
275. VEITCH Yep.
276. TWEEDIE I'll hand it around.
277. K MORRIS Document 67
278. TWEEDIE Thank you. Now, Mr Veitch, you were the author of this document, weren't you?
279. VEITCH Yes.
280. TWEEDIE In fact, if you turn to the first inside page, Roman numeral (i), it identifies TV, and I assume that's you?
281. VEITCH That's correct.

282. TWEEDIE As being effectively the sole author of it.
283. VEITCH Yep.
284. TWEEDIE It says it was prepared for the Department of Economic Development, Jobs, Transport and Resources on the front. Is that correct?
285. VEITCH Yes.
286. TWEEDIE And was this a document that you prepared to respond to issues ... or in part to responds to issues raised by Mr Allard as to the dispute between the two of you in relation to the type of modelling approach to take.
287. VEITCH In part, yes.
288. TWEEDIE Now, I just wanna take you to the introduction, Mr Veitch. I won't take you to all of these parts, but "The State of Victoria is fortunate to have access to two four-step travel models". Still don't like that word?
289. VEITCH Um ... point taken.
290. TWEEDIE Aright. Well, I'm not gonna play games with you, Mr Veitch. Is there anything in this report that you wrote that was untrue?
291. VEITCH Um, no, nothing I wrote in this report is in substance different to what I think now.
292. TWEEDIE Okay.
293. VEITCH But, of course, we may use different choice of words at different moments in time.
294. TWEEDIE I understand that. I'm not trying to be clever about that. What I wanna know is, is that what you said in this report is your honest, professional, expert view?
295. VEITCH Yes.
296. TWEEDIE And there's nothing here that was misleading or incorrect or pure advocacy?
297. VEITCH No ... I mean, obviously, you could update this. It was written in 2015. There would be more up to date information available now, but at the time we wrote it, it was based on the latest available information and ...
298. TWEEDIE Can you turn to page 36, under the conclusion. And I've read out live passages of this, and you've agreed with it, so I don't think we need to go through it, but can you just confirm, going to the last paragraph, "Based on the evidence reviewed, there's not enough evidence to conclusively favour one approach over the other and we suggest that both should be considered legitimate approaches until new evidence suggests otherwise or until better methods emerge".
299. VEITCH Yes.
300. TWEEDIE That remains your view today?
301. VEITCH Yeah, there's not only one valid modelling approach, and this ... I mean, this is one particular issue. There are countless issues like this in modelling where there are

alternative methodologies available and choices are made about what one thinks is most reasonable, yep.

302. TWEEDIE Well, there might be countless issues but this is an issue that has real significance in terms of the results, doesn't it?
303. VEITCH It does. So ... sorry, I wouldn't say it has huge significance in terms of ...
304. TWEEDIE No, I said real significance.
305. VEITCH It has an impact, yes.
306. TWEEDIE Well, let's just be clear about the impact. Adopting your approach, the single-distribution approach, results in situations that the model produces estimates of car, trip lengths, kilometres travelled, and kilometres travelled per capita that are materially larger than produced using the other method.
307. VEITCH Um, they are marginally higher. I wouldn't say that they're drastically higher.
308. TWEEDIE Okay. Well, we we've gone from they're not marginally or drastically. Let's have a look at some of the figures because ...
309. VEITCH Sure.
310. TWEEDIE ... in fact, at page 11 of this report, unlike anywhere else in the EES or your expert statement, you've actually set out a comparison.
311. VEITCH Correct.
312. TWEEDIE This is ... this is not confidential information, is it?
313. VEITCH Um, I don't know legally whether it's confidential, but [*talking together*] I'm not shying away from it.
314. TWEEDIE Okay. Alright.
315. VEITCH? [*Laughs*].
316. ## [*Talking off microphone*].
317. VEITCH? [*Laughs*].
318. TWEEDIE Can you look there at the ... so what you've done in this table is that there's a run of the Zenith model in 2011, which you said was originally the base case. Correct?
319. VEITCH Correct.
320. TWEEDIE And then you've done it for 2031 using single-distribution, that's the middle column, and 2031 loop-through distribution.
321. VEITCH Correct.
322. TWEEDIE The more common method, the VITM method?
323. VEITCH Yep.



324. TWEEDIE Okay. So if we look at the middle, the difference between average car trip lengths with single distribution compared to loop-through is in the order of ... in excess of 7%, close to 8%?
325. VEITCH Correct.
326. TWEEDIE 8% more trips on your model than the other model?
327. VEITCH In trip lengths, yes.
328. TWEEDIE With kilometres travelled, the difference is even bigger, it's about 13% ...
329. VEITCH Correct.
330. TWEEDIE ... that your model increases the car to kilometres travelled by 13%.
331. VEITCH Correct.
332. TWEEDIE Now, you're not suggesting that's not a material difference, are you?
333. VEITCH It's ... that is a material difference.
334. TWEEDIE It is a material difference.
335. VEITCH It does not in itself make one of the other wrong or right.
336. TWEEDIE Exactly. Neither of them are right or wrong, we don't know. They're materially different though.
337. VEITCH They are.
338. TWEEDIE And someone should think about the material difference and assess the impacts of that difference, shouldn't they?
339. VEITCH Well, it was thought about and, you know, tests were done. The ... this is not the only such issue, there are many such issues to disclose all such technical issues in the EES would make it far longer than it already is.
340. TWEEDIE Yeah, but this is not just some issue, this is an issue where the independent peer reviewer, the only person it appears has ever come in from the outside to view your modelling, has said you're wrong. This is not the approach you should take.
341. VEITCH Sure, sure.
342. TWEEDIE So it's not just one trivial issue amongst others, isn't it? It's an issue where you have been clearly and unambiguously told by independent peer reviewer, "We don't support this approach".
343. VEITCH I think the ... it's worth, perhaps, mentioning the other major issue that the peer reviewer ...
344. TWEEDIE No, perhaps you could just answer my question.
345. VEITCH Um ... *[talking together]* ...

346. TWEEDIE Were you clearly and unambiguously told by an independent peer reviewer that this was not the correct approach?
347. VEITCH That was their opinion.
348. TWEEDIE Yes. And you would not ...
349. VEITCH It's a matter of opinion.
350. TWEEDIE ... then say that this was just another issue that arose in the technical aspects of the modelling, would you?
351. VEITCH Sure, it is a matter of significance.
352. TWEEDIE Okay. Now, in terms of weekly tyre kilometres covered per capita, again, the difference is in the order of about ... I make it 9.3% that your approach overestimates or ... sorry, I'll withdraw that because that's pejorative ... has a higher estimate?
353. VEITCH Correct.
354. TWEEDIE And again, that's not an insignificant difference, is it? It's a material difference.
355. VEITCH It's material.
356. TWEEDIE And it's capable, when put through the model, of achieving materially different outcomes, isn't it, on the micro level?
357. VEITCH It can, in some circumstances. It would not, in others.
358. TWEEDIE Exactly. And we don't know until we've done it.
359. VEITCH Sure.
360. TWEEDIE And it's these sort of differences that combine with the inherent uncertainty in modelling to introduce even greater uncertainty in the modelling, isn't it?
361. VEITCH There is uncertainty in modelling, yes. This is one of the contributors to uncertainty.
362. TWEEDIE Yeah. But it's ... for you, it's not just a question that all modelling is uncertain. We've got two different approaches that are producing materially different outcomes. Correct?
363. VEITCH Correct.
364. TWEEDIE Alright. Now, given that the independent peer reviewer never effectively signed off on the use of your methodology, who did? Who told ... who rejected or directed you to no longer use the loop-through distribution approach and to, instead, only use the single distribution approach?
365. VEITCH In terms of the business case of EES, or ...
366. TWEEDIE For the business case and for the EES.
367. VEITCH I don't believe we were directed to use one approach or the other. I've ... I've ...

368. TWEEDIE You made your own choice.
369. VEITCH Well, to be honest, I have to say I was not working inside the team during the business case so I can't say exactly what the process was. But it would be usual for us on a very detailed, technical manner like this to make our own judgements.
370. TWEEDIE Well, you say you weren't working in the team but you drafted this document?
371. VEITCH Yes, so my role in this project was often to get called in when there were issues of importance ... controversial issues like this, so ... or matters of disagreement like this. So, when this matter was raised, that's when I got involved in the project.
372. TWEEDIE Okay. So, let me be very clear about this. There's an issue of importance ... a controversial issue about which modelling approach should be used. As I understand it, you could have used the Zenith model with either of those approaches?
373. VEITCH Yep. Correct.
374. TWEEDIE You chose to use one approach which was your own firm's approach rather than the more widely-used approach?
375. VEITCH Yes.
376. TWEEDIE And no one told you to do that? That was all your firm's judgement?
377. VEITCH That is ... again, I wasn't there, so I don't know exactly what was said but I don't believe we were directed to take this approach, if that's what you're suggesting.
378. TWEEDIE So, that means the stakes are even higher for you now, aren't they Mr Veitch? Because if that judgement was wrong or if that judgement was a judgement made by your private company in the wrong circumstances, it's very significant for your company, isn't it?
379. VEITCH I think we ... whenever we do work of this type, it's significant.,
380. TWEEDIE Alright. Well, I wanna move on now to an issue, Mr Veitch, and that's in terms of what you've said about the accuracy of the Veitch Lister Model. Just so I understand your evidence correctly, if we go to your slide and perhaps if you can get it up, it's the slide "Introduction to VLC". What you've said is, "Particular expense in toll roads with a high level of correlation between predictions and outcomes of the toll roads." Is that right?
381. VEITCH Yes, that's correct.
382. TWEEDIE Now, in your evidence, you said in words that you've had a reasonable degree of success in predicting demands of the toll roads.
383. VEITCH [*Agrees*].
384. TWEEDIE Which is it? Is it a high level of correlation or a reasonable degree of success, or are they the same things?

385. VEITCH They're not strictly the same thing but I think both statements are correct.
386. TWEEDIE Okay. Now, the evidence that you produced that other people can check in support of that assertion is limited, is it not, to table three, "Reliability of Four-step model"?
387. VEITCH Correct.
388. TWEEDIE Now, what you produced there is the results of modelling for one particular road associated with a particular project.
389. VEITCH What do you mean "one"?
390. TWEEDIE Well. The toll road cross... you've got actual volume.
391. VEITCH Yes. Correct, yes.
392. TWEEDIE That's the volume on one road?
393. VEITCH On the cross city tunnel.
394. TWEEDIE On the toll road?
395. VEITCH Yes.
396. TWEEDIE The new road.
397. VEITCH Yes.
398. TWEEDIE Not on anywhere else in the network?
399. VEITCH No, no, no. [*Talking together*].
400. TWEEDIE So all of these figures are the figures associated with one road ...
401. VEITCH Correct.
402. TWEEDIE ... assessed under the model?
403. VEITCH Correct.
404. TWEEDIE 'Cause your model doesn't just assess that one road, it does the whole network.
405. VEITCH That's correct.
406. TWEEDIE So, we don't know the degree to which you were close or not close for every other road in the network. Just the one road that was the toll road.
407. VEITCH From that information. That's correct.
408. TWEEDIE And what it reveals is that on one occasion, you were in relation to that, 30% out.
409. VEITCH Correct.
410. TWEEDIE I wouldn't regard that as a high degree of correlation, Mr Veitch, would you?
411. VEITCH High is relative.
412. TWEEDIE Of course it is.

413. VEITCH You can see that the other forecast there was 420% out.

414. TWEEDIE So, you less wrong than others?

415. VEITCH All forecast [laughs] ... I would be lying if I said that you expect to get forecasts spot-on everytime. Sometimes you're gonna be more accurate than others.

416. TWEEDIE I understand that. I'm trying to get a feel for the range of error here. And based on this, the range of error in your modelling is from 0 – 30%.

417. VEITCH Correct.

418. TWEEDIE Now, aside from those four roads, none of them are in Melbourne, are they?

419. VEITCH No. That's correct.

420. TWEEDIE So, none of them used predictions using the Zenith Melbourne model?

421. VEITCH That's correct.

422. TWEEDIE And the Zenith Melbourne model, as you've indicated, is a completely different model to the Zenith Sydney, Zenith Brisbane, Zenith wherever model.

423. VEITCH It's the same modelling process in the same ...

424. TWEEDIE It's a completely different model that takes into account a whole series of different assumptions that are particular to the city you're associate ...

425. VEITCH Yes, in the sense that Melbourne is different to Sydney and Brisbane, yes.

426. TWEEDIE So, again, the results of modelling for places outside of Melbourne are not the results of using the Zenith Melbourne model?

427. VEITCH That's correct.

428. TWEEDIE But, can I assume you did use the Zenith Melbourne model when you modelled CityLink?

429. VEITCH Yeah, that would be correct.

430. TWEEDIE And EastLink?

431. VEITCH Yes, correct.

432. TWEEDIE But we don't have any figures for them, do we?

433. VEITCH No, we don't. So, EastLink ... I actually worked on that project and normally we don't release the figures because of confidentiality.

434. TWEEDIE Okay.

435. VEITCH I think it is ...

436. TWEEDIE Well, you'd have to release the figures. Sorry.

437. VEITCH I think it is in the public domain. I think it was actually mentioned in a similar forum to this that, you know, we actually got EastLink correct within 1%.

438. TWEEDIE Well, are you able to provide the figures then?
439. VEITCH [*Laughs*].
440. TWEEDIE Is that the figures from that road?
441. VEITCH So, that is the total transactions on EastLink as compared to our forecasts and that was a number that we were provided by the State. It would have been the Linking Melbourne Authority who we did the work for on EastLink. They ... we did the work within government, so we don't actually have access to the work that we did. We've been informed that we were that accurate.
442. TWEEDIE Alright. So, in terms of, again, what other people are able to look at in your report, there's nothing that shows we're able to examine about your level of accuracy with EastLink, which is the Melbourne toll road?
443. VEITCH In terms of a priority, as in what we predicted prior to its opening ... no, you cannot see that from this table.
444. TWEEDIE And nothing about CityLink either?
445. VEITCH That's correct. That said, there are ... in our validation reports, we do include what the model is predicting for those roads today or in 2014 and the model does reasonably, accurately replicate what is happening on CityLink and on EastLink.
446. TWEEDIE It does it reasonably accurate today?
447. VEITCH We're in 2014. So our base year is 2014.
448. TWEEDIE I know. But you're saying we're calibrated to current conditions.
449. VEITCH Yes. Sure.
450. TWEEDIE But we're talking about predictions, aren't we?
451. VEITCH Yeah, we are. Yep, we are.
452. TWEEDIE So, how does that help us with assessing whether or not your 2031 predictions are accurate? It has to be calibrated or you can't use it. Correct?
453. VEITCH Well, no, I agree. I agree. Fundamentally, if a model of a recent year replicates on two different toll roads and on a number of different toll points ... 'cause these are long toll roads. So if it replicates to a reasonable degree what's occurring on those roads, that is not proof that it will predict a new toll road correctly. But it does develop confidence that your model is, for example, reasonably estimating whether or not people pay tolls at different toll levels, which builds confidence that it's a reasonable basis upon which to forecast.
454. TWEEDIE Okay. What I'm looking for is concrete material in the public domain that allows us to independently assess your assertion that you have a very high record ... an accurate record of forecasting toll roads.

455. VEITCH Well, this evidence is ...
456. TWEEDIE In my notes, all you've produced in terms of reviewable information, is that. Correct?
457. VEITCH Sure.
458. TWEEDIE Alright. Well, that's your choice. Now, can I then ask you some questions about tolls?
459. VEITCH Yes.
460. TWEEDIE Now, can you go back to the document I handed out ... your document and (Sir do I need to tender that document or shall we mark that ... oh, sorry, sorry I must of missed that). Thank you. Now, I wanna take you to page eight. And I wanna ask you, Mr Veitch, the tolls that will be charged on this toll road are important input, aren't they?
461. VEITCH That's correct.
462. TWEEDIE And they're important because they impart on what determines travel cost? Correct?
463. VEITCH Yes. Sorry, yes.
464. TWEEDIE And travel cost is an important influencer of travel choice?
465. VEITCH Yes.
466. TWEEDIE Now, are tolls a seed ... I think you described them as an input to seed the model?
467. VEITCH Our tolls are part of ... I assume you're referring to the second paragraph there where it says, "The seed travel times in costs"?
468. TWEEDIE Yes.
469. VEITCH Those costs include tolls.
470. TWEEDIE Okay. So, what you said there, "In the Zenith process, however, the seed travel times and costs are very important because they fully determine the trip distribution."
471. VEITCH Correct.
472. TWEEDIE In contrast, in the VITM modelling process, the one that uses a loop-through distribution, the travel times and costs uses input to seed the model run are not so important provided the model is iterated enough times to ensure satisfactory levels of convergence.
473. VEITCH Correct.
474. TWEEDIE So, the approach that you've adopted is one that is inherently more sensitive to variations in tolls?

475. VEITCH I wouldn't say that's correct. No.
476. TWEEDIE Well, I don't understand then. If you had less important to the VITM modelling process but very important to the Zenith process ... ?
477. VEITCH Well, that's referring to the seed travel times and tolls. So the ones that are input at the start of the modelling. Toll is in both the seed travel costs but also in the ones that feed back. So, it's ... the effect of tolls is no different.
478. TWEEDIE I think you're misunderstanding. In each model, the seed cost which include assumptions as to what the tolls will be, are an important part of the modelling process.
479. VEITCH In our approach they are particularly important. Yes.
480. TWEEDIE Yes. Because they determine the choices people will make.
481. VEITCH Yes.
482. TWEEDIE And in your approach they're particularly important because, as you say, your modelling process doesn't loop back through trip distribution and subsequent iterations.
483. VEITCH Correct.
484. TWEEDIE So, the model then ... your model, is far more dependent upon for its accuracy on getting the toll figures accurate?
485. VEITCH When you say the toll figures, do you mean the toll prices?
486. TWEEDIE Yes.
487. VEITCH I think the toll prices are equally important in both approaches.
488. TWEEDIE Well, that doesn't seem to be what you said there. So let me say ... try this again. If you assume the toll is \$10 and it turns out to be \$20, that will have a more significant impact ... sorry, let me rephrase that. Your model will make an assumption about what the toll cost will be. Correct? That's what's happened here?
489. VEITCH Yes.
490. TWEEDIE And that's seeded in.
491. VEITCH Yes.
492. TWEEDIE And then that's used to predict what people would do in the future.
493. VEITCH Correct.
494. TWEEDIE And if, in your modelling approach, if it turns out that that toll is not what is actually imposed, that will have a greater effect on your modelling ... the accuracy of your modelling figures, won't it?
495. VEITCH No, I don't think that's correct. I think ...



496. TWEEDIE What ... sorry?
497. VEITCH ... maybe there's a ... I think we might be across purposes here, possibly. The toll price is the toll price in the model. You run a single scenario and we will set the toll price to whatever it assumes and it will affect the modelling results. In the alternate approach where you feed it back through the distribution, it's the same ... that you set the toll price and that's the toll price. So, it makes no difference in either approach. The effect of the toll, that you assume, not being the actual toll that transpires, would be the same in each approach.
498. TWEEDIE Won't it ... won't, if you get the tolls ... if you use the wrong toll figure, won't your model be more inaccurate than the other model because, as you've said, you don't feed back through?
499. VEITCH I don't think that's the case 'cause the toll is the toll. The toll that's seeded in would be the same as the toll that's fed back if you feed it back through. So, I don't believe it makes any difference.
500. TWEEDIE Alright. Well, in any event, the model is sensitive to tolls and it's ... and whether or not it reflects what happens will be influenced, in part, by whether the tolls that we assumed are the actual tolls.
501. VEITCH Absolutely.
502. TWEEDIE Now, can you go to page six of your expert witness statement? And you see "The key assumptions are as follows"?
503. VEITCH Yes.
504. TWEEDIE " ... and the West Gate tunnel. In our traffic modelling, we have coded the West Gate tunnel as having only two lanes in each direction."
505. VEITCH Correct.
506. TWEEDIE See that?
507. VEITCH Yes. I see that.
508. TWEEDIE Correct me if I'm wrong, but that's not what's actually proposed, is it? It's three lanes in each direction.
509. VEITCH I understand that the tunnel's geometry is designed to allow, potentially, the three lane operation but that's not all we've modelled.
510. TWEEDIE Alright. Well, you've modelled two lanes.
511. VEITCH Yes.
512. TWEEDIE If the tunnel has three lanes in each direction, it's going to increase traffic flow through the tunnel, isn't it?
513. VEITCH I wouldn't say by 2031. The effect of adding an extra lane ... we would only really have an effect if capacity was actually an issue. Because when you approach

capacity, that's when adding a lane will have an effect and by 2031, in the actual tunnel, we're not forecasting that the road will be at capacity. So it wouldn't have a big impact.

514. TWEEDIE So the tunnel's not at capacity at 2031?
515. VEITCH Correct.
516. TWEEDIE And it doesn't matter whether it's two lanes or three lanes as to the amount of people that might be encouraged to use it at peak hours?
517. VEITCH Maybe marginally at the peak hour. But not to a great degree.
518. TWEEDIE Alright. But in any event, were you instructed to code is as two lanes?
519. VEITCH I wasn't there so I can't say that I've received that instruction. But I believe that assumption was agreed with the other technical advisers.
520. TWEEDIE Okay. Now I want to then turn to page 14 and deal with this issue of speed flow curves and also the... and what's described as the post-processing applied to the Zenith figures.
521. VEITCH Yep.
522. TWEEDIE So, correct me if I'm wrong, but I understand that the Zenith model will predict road figures that exceed the practical capacity of the road?
523. VEITCH It can do.
524. TWEEDIE It can do?
525. VEITCH Yes.
526. TWEEDIE And when it does do that ... what's happened here, is that someone else has then processed those figures to reduce those figures or shift the excess traffic away from a time when there's no capacity to other times?
527. VEITCH Correct.
528. TWEEDIE Now, you haven't done that?
529. VEITCH No.
530. TWEEDIE There's nowhere in the EES that indicates who did do that, is there?
531. VEITCH I can't answer ... I'm not 100% sure whether the EES says who did that. The EES does say that that's what happened, though.
532. TWEEDIE Okay. So, again, all of the figures that are produced in the EES as to traffic volumes are not the raw outputs of your model?
533. VEITCH Correct.
534. TWEEDIE In fact, they are post-processed figures ...

535. VEITCH Correct.
536. TWEEDIE ... which had been processed by some unknown person to come up with a final matter ... a final figure?
537. VEITCH Correct. Well, I don't know if they're unknown but they are post-processed by another person.
538. TWEEDIE Alright. Now, as I understand it, if we go back to your single distribution method, your single distribution method is predicated on the assumption that people will shift time of travel, not destination.
539. VEITCH Yes. Yes, that is what we are assuming.
540. TWEEDIE That's why you've adopted it because you've said what people will do is change their time of travel.
541. VEITCH Yep. Correct.
542. TWEEDIE And yet as I understand it, your model doesn't account for that or model that move.
543. VEITCH No, not explicitly. As you said, though ... as you said, the volume that we predict can exceed the practical capacity of a road. So, if we interpret that as meaning during, for example, a peak hour the volume will exceed capacity. Not all of that volume will be able to flow down the road ... there might be queues formed or people may travel earlier or later. So, where the volume exceeds capacity, we generally interpret that as meaning that either the people spread or queues were formed.
544. TWEEDIE Okay. It seems to me extraordinary that a model approach, which is based on the assumption that there will be peak spreading, not trip distribution, doesn't contain within it some way of modelling or accounting for that very same peak spreading. But that's the case, is it?
545. VEITCH Yes, the model does not explicitly account for peak spreading so there's no mechanism within the model that says as congestion increases in the peak, that people will switch to the shoulders. It's a common feature of all models in Australia at this point in time.
546. TWEEDIE Well, okay, it might be. But it's a very strange feature of a model that has as an expressed assumption, that there will not ... that there will be a greater level of peak spreading over and above other models. Correct?
547. VEITCH So, we're implicitly allowing for peak spreading. Where the volumes exceed capacity, you can interpret that as peak spreading. If that makes sense.
548. TWEEDIE Well, your model interprets that as peak spreading. The more standard model interprets it as perhaps people ... gives people the opportunity to choose another location.
549. VEITCH Correct.

550. TWEEDIE But you don't give them that opportunity. You just say, "It's just gonna peak spread."
551. VEITCH Yeah. That's reasonable to say, yes.
552. TWEEDIE So you've got a model based on the assumption there'll be peak spreading but doesn't account for it or identify in what way it will occur and then has to be handed to someone else for post-processing to form a judgement as to what that will be.
553. VEITCH Correct.
554. TWEEDIE Okay. And you're not able to assist us with how the capacity of roads was determined?
555. VEITCH It's more of a traffic engineering thing. So I can't shed much advice on it.
556. TWEEDIE You don't know how much excess demand was shifted from the peak period?
557. VEITCH I haven't examined it in detail, no.
558. TWEEDIE You don't know what percentage went before or after the peak period?
559. VEITCH I think it was evenly distributed before and after.
560. TWEEDIE You think that or you know?
561. VEITCH Well, I figure eight of Appendix F ... is it figure six? Figure six or eight of Appendix F ... figure eight of Appendix F states that it's evenly distributed on both sides.
562. TWEEDIE Okay. And that's for every road?
563. VEITCH Yes. Every road where the volume exceeds the capacity.
564. TWEEDIE But, I think, doesn't that lead us to ... again, you were discussing this when you were discussing Mr Key's evidence and what emerged ... what he ... his evidence. But it's correct, isn't it then, that the model figures that emerge out of the Zenith model are more properly regarded as a measure of demand rather than actual traffic volumes on roads?
565. VEITCH In the circumstances where the volumes exceed the capacity, yes.
566. TWEEDIE Well, are you able to tell us which roads, in relation to this, have been post-processed?
567. VEITCH I can't tell you, no. I don't know exactly which roads.
568. TWEEDIE Is there anywhere in the EES that identifies which roads have been post-processed, or by how much, and which ones haven't?
569. VEITCH Not that I'm aware of.
570. TWEEDIE So, again, leaving aside ... without the post-processing, what we've got is a prediction as to ... or a forecast as to what the demand to use a road would be, provided it had that capacity?

571. VEITCH It's partially constrained. So, it's not true to say it is for pure demand. The model includes things called speed flow curves which basically dictate how the speed on a road drops as the volume increases. So as the road gets more congested, the speed drops and that acts as a deterrent to people using the road when it gets congested. So, the speed continues to drop the more it's congested to get. So, it's not true to say that anybody who wants to use the road will use it. The speed becomes lower and lower as the volume increases.
572. TWEEDIE So, if we go to the slide we you've reproduced the figure for Mr Key's evidence, which is "Daily West Gate Bridge forecasts may be overstated". So, just so I'm clear, you agree with Mr Keyes, that whereas there might be a theoretical demand for 270,000 vehicles in 2031 going over the West Gate bridge. In reality it's only ever going to accommodate in the order of 200,000.
573. VEITCH Well, the 270 isn't our number. I think the number we produced there was about 245. The ... then a range has been put around that number. That's why you get the 271.
574. TWEEDIE Well, let's forget about the range. Let's go with your figure ... 245.
575. VEITCH Two forty five, yep.
576. TWEEDIE So, that's a estimation of the theoretical demand for someone to use this road if they road could accommodate it, which is how?
577. VEITCH Well, it's ... I don't think you can go so far as to say it cannot.
578. TWEEDIE It's unlikely to.
579. VEITCH I'd say there's a good ... good ... I'd say it's more than likely that it won't carry 245. That said, volumes of that scale per lane are achieved, including in Melbourne. High volumes per lane are achieved on other roads.
580. TWEEDIE Right. So the real question isn't how do we accommodate 245,000 vehicles that in 2031 will go over the West Gate ... it's how as a community, we should accommodate 245 that the ... that the demand that might be as high as 245,000?
581. VEITCH To some extent, yes. I think from a planning perspective, if there is significant development in the West, you would expect the demand for travel to increase and this clearly shows that there will be an increase in demand. If we don't cater for it, it may be suppressed.
582. TWEEDIE And it's a question ... one question that would need to be asked is how you catered for that demand. Whether you catered for it by providing opportunities for cars or whether you give people an alternative to that?
583. VEITCH Yeah, all modes would be considered.
584. TWEEDIE See, there's another assumption of your work that public transport capacities are unconstrained.

585. VEITCH Correct.
586. TWEEDIE So that your modelling assumes that whoever wants to go and travel on a train into the city, will be able to do so because there's no limits on the capacity.
587. VEITCH That's correct. In this type of modelling. If we were modelling something like Melbourne Metro, we would constrain the public transport system.
588. TWEEDIE Alright. Well, doesn't that now introduce an element ... a very significant element of unreality into this model? Because the fact is, is that public transport capacities are constrained and will continue to be constrained, won't they?
589. VEITCH It is true that in reality constraints exist. It is also true that rail capacities are forecast and assumed in the modelling to increase substantially between today and 2031. Melbourne Metro is included in the model, so there are substantial ... I think the increase on rail capacity in the West is of the order of maybe 70 to 140%, or so. Like, it's of that order.
590. TWEEDIE But I understand that your modelling is ... well, that the modelling assumes that none of that is due to the construction of the road.
591. VEITCH No, that's a separate project. Yeah, so Melbourne Metro is in the model.
592. TWEEDIE No, I understand Melbourne Metro is a separate project but you're saying that ... well, the model assumes that more people will use public transport in the future. Correct?
593. VEITCH Correct. We do forecast that.
594. TWEEDIE But none of that is a consequence of building this, is it?
595. VEITCH No, that's correct. It's not a consequence of this project.
596. TWEEDIE If we're trying to assess here the level to which this road project will reduce road congestion, it is unrealistic to proceed on the basis that people who want to use public transport will be able to do so with an unlimited capacity.
597. VEITCH I think it really depends to what degree the forecasts exceed the capacity of the public transport system.
598. TWEEDIE And we don't know that?
599. VEITCH Not from the information presented. No.
600. TWEEDIE So there's another element of uncertainty in this modelling. Correct?
601. VEITCH That's correct.
602. TWEEDIE I'm not saying it's not in any modelling but it's another reasonably ... it's another significant element of uncertainty because you've assumed something ... maybe you've had to but it just isn't reality.
603. VEITCH Yeah. And I would say, though, that this is the same assumption that every model

doing forecasting for road project makes. This is just a standard assumption.

604. TWEEDIE Can I just clarify something? Can you go to this slide?
605. VEITCH Yes. One moment.
606. TWEEDIE Sorry. The slide I'm asking for is "Predicted traffic increase on Dynon Road (Hunt)". Okay, have you got that?
607. VEITCH Yes.
608. TWEEDIE I wasn't clear. This is new analysis, is it? It's not ... these slides have been prepared for your evidence. They're not ... they don't appear in ... sorry, prepared for this presentation. They don't appear in your statement.
609. VEITCH Correct.
610. TWEEDIE And they don't appear in the EES.
611. VEITCH Correct.
612. TWEEDIE And you haven't labelled them. But I think the one on the left is the 2031 without the project?
613. VEITCH Correct.
614. TWEEDIE And the one on the right is 2031 with the project?
615. VEITCH Correct.
616. TWEEDIE So who did this analysis?
617. VEITCH One of my staff.
618. TWEEDIE One of your staff?
619. VEITCH Yes.
620. TWEEDIE Okay. Okay, now you do also say in your evidence that you have modelled ... I think what you said was "hundreds of different options for the project". Correct?
621. VEITCH We've run hundreds of different tests. I wouldn't ... I can't confirm whether every single one of those tests is a different variation of the project. Sometimes other things are varied, like, things not related to the projects, like your prices and so on.
622. TWEEDIE Okay. Well, amongst the things that you have been asked to model, do they include versions of the project without ... or with different city access arrangements?
623. VEITCH Yes.
624. TWEEDIE So you've conducted and produced, using the Zenith model, an entire model run-through that explores an option that would have, for example, no city access of Dynon Road?
625. VEITCH Yes.

626. TWEEDIE Can you ... do you have available to you or can you be made available between volume one of the main report? Do you have that and could you please turn to page 333?
627. VEITCH Yep, I have it.
628. TWEEDIE And now do you see at the top of page 333, four options were considered for the project's city connections, as shown in the figure below. Unfortunately, the figure below doesn't seem to exist. But in any event, do you see those for options? No connection to the city with connection only to and from CityLink?
629. VEITCH Yep.
630. male 3 Mr Tweedie, can we get a PDF number?
631. TWEEDIE Oh, I'm sorry. It's on page 333, sir, of volume ... main report, volume one. Okay. So the first option that apparently was considered with no connection to the city, with connection only to and from CityLink. Can you confirm that you carried out modelling of the traffic impacts across the whole network in that?
632. VEITCH I can't say with certainty. But, as I said before, I believe that's very likely.
633. TWEEDIE Okay. And what about two?
634. VEITCH I believe that's very likely ... I believe all of those tests were probably undertaken.
635. TWEEDIE All of them had been done?
636. VEITCH Yep.
637. TWEEDIE And provided to the department?
638. VEITCH I'd say ...
639. TWEEDIE Or who were they provided to? Who did your modelling results?
640. VEITCH So, we work within ... with a group of technical advisers who were working from WDA.
641. TWEEDIE Okay. And you gave all the ... all the information, you believe, was given to the WDA? All of this modelling?
642. VEITCH To the technical advisers who were working with us for WDA.
643. TWEEDIE So the WDA will have in its possession, as far as you're aware, full model outputs from the Zenith model for no connection to the city, with connection only to and from CityLink and all those others?
644. VEITCH I consider is very likely.
645. TWEEDIE Thank you. Would you be able to tell us whether, do you think ... do you know whether the project was modelled also using VITM?
646. VEITCH I don't know. I don't know the answer to that question.



647. TWEEDIE     Alright.

648. VEITCH       I can take it on notice and find out. I don't know.

649. TWEEDIE     Okay. Did the peer reviewer ever tell you or talk to you about that?

650. VEITCH       No.

651. TWEEDIE     Did you have any actual interaction with Mr Allard personally?

652. VEITCH       I attended one meeting with Mr Allard.

653. TWEEDIE     And, can you tell us how your ... what happened to Mr Allard? Did he just suddenly disappear and no longer be giving input into the project, or what happened?

654. VEITCH       I'm not sure, to be honest. I don't know.

655. TWEEDIE     Did you have interactions with Mr McDougall, as well?

656. VEITCH       He was at that meeting that I was at.

657. TWEEDIE     And you can confirm that Mr McDougall was a person who was involved and employed by the department to assist with the peer review of your modelling of the Business Case?

658. VEITCH       I don't think he was strictly a peer reviewer. I think his role was, sort of, audit ... some kind of audit in insurance role. It wasn't strictly peer reviewer, it was something else. But he was in that meeting, which was a meeting to do with the peer review.

659. TWEEDIE     Okay. Now you say "that meeting".

660. VEITCH       Yes.

661. TWEEDIE     Did you have a meeting with the peer reviewer in which he communicated, amongst other things, his disagreement with you about the use of your single distribution approach?

662. VEITCH       I can't recall exactly whether that issue was discussed. I'd say it's likely, but I can't recall exactly.

663. TWEEDIE     Can I assume that a meeting of that importance would have been minuted and recorded by your company?

664. VEITCH       I think it's likely, yes.

665. TWEEDIE     And there'd be no reason why, if it was recorded, that you couldn't provide a copy of those minutes to this committee?

666. VEITCH       I don't ... there might be legal issues. I don't know if that's legally possible.

667. TWEEDIE     Leaving aside legal issues ...

668. VEITCH       Leaving aside legal issues ...

669. TWEEDIE ... have you got no problem with the committee having this meeting?
670. VEITCH No, no, no. Absolutely not.
671. TWEEDIE In fact, you think it would be a good thing, wouldn't it, for the committee to have access to what the only independent peer reviewing voice has said about your modelling. You'd welcome that, wouldn't you?
672. VEITCH Well, I think peer review ... the views of a peer reviewer are relevant in that sense, yes.
673. TWEEDIE Yeah. Alright. Can I ask you one last thing before I turn you over to others? The EES contains within it a document and this is in the technical report Part A ... you don't need to necessarily have it. But a document described as a technical peer review, transporting pack assessment made 2017 by Mr Pelosi?
674. VEITCH Yep.
675. TWEEDIE Have you seen that document?
676. VEITCH I have seen it and I've read snippets of it. But I haven't read it cover to cover.
677. TWEEDIE Sorry? Do you understand that, in it, Mr Pelosi says expressly that he has not reviewed the modelling?
678. VEITCH I take that as given, if that's what you're saying.
679. TWEEDIE Oh, okay. And he says he doesn't have the qualification expertise to review the modelling. Okay?
680. VEITCH Yep.
681. TWEEDIE Are you able to explain why there is a peer review of every part, apparently, of the transport impact assessment except your modelling?
682. VEITCH No, I don't know why that is.
683. TWEEDIE And are you able to explain why it is that the EES contains a peer review ... I withdraw that. Thank you. I have no further questions.
684. WIMBUSH Thank you, Mr Tweedie Miss Morris, do you still have the order of 30 minutes?
685. TWEEDIE I do. Thank you.
686. K MORRIS Thank you. We'll just take a short break to thaw our feet. We'll start again at 02.40 p.m. Thank you.

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