

# Low Carbon Fuel Standard Final Advisory Panel Meeting

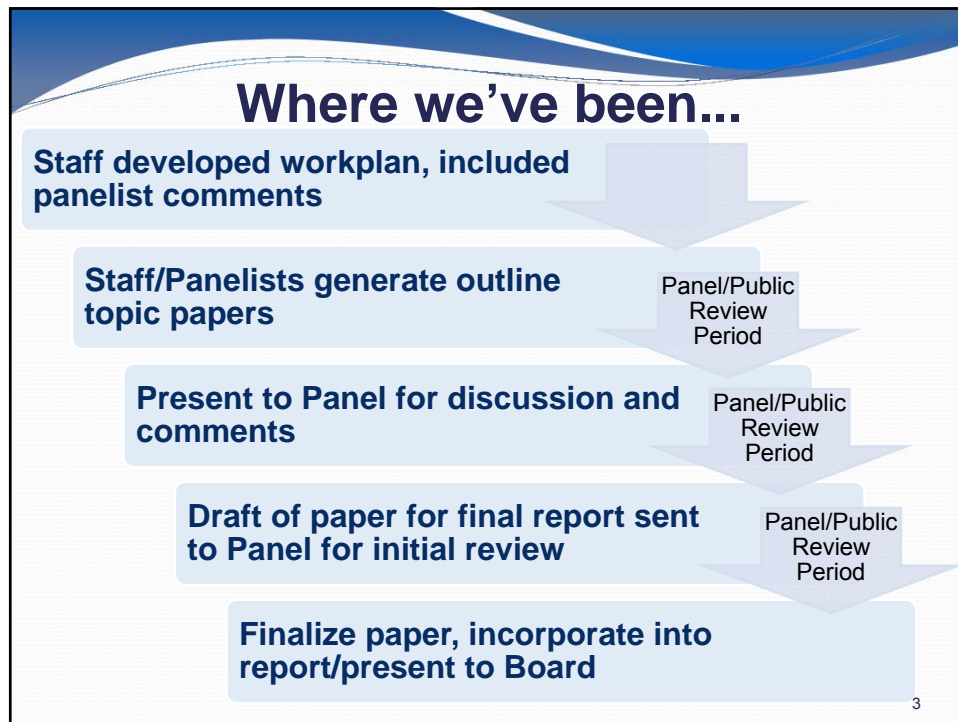
October 27, 2011

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## Agenda

- Introductions
- Recap of Panel Activities
- Credit Trading
- Plausible Scenarios, Meeting the Targets
- Economics
- HCICO
- Previously Released Chapters
- Summary and Next Steps

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## Tasks before Board Hearing

- Your comments requested by **November 17, 2011**
- Staff will work on incorporating edits into final review report
- Final report will be released at least 10 days before the December Board Hearing
- Panelists will be asked to fill out a short survey regarding the Panel

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## Tasks for Board Hearing

- Panelists are strongly encouraged to attend the Board Hearing on December 15
- Staff will provide presentation of the Review Report including data we extract from the survey

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## Beyond this year...

- Staff will perform informal reviews and provide Board updates between now and 2015
- Panel members will be invited to return for the 2015 LCFS Program review – there will also be an open solicitation process for new members
- Staff to continue conversations with panelists and stakeholders related to concerns regarding the LCFS

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## Need for New Scenarios

What's changed since 2009?

- Less cellulosic ethanol
- Lower corn ethanol CIs
- Loss of fuel subsidies
- Consideration of credits for compliance

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## Common Assumptions - Gasoline

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Corn EtOH CI	87.8	84.7	81.6	79.0	76.6	74.3	72.0	69.9	67.9	66.0
Cane EtOH CI	73.4	72.0	71.0	70.0	69.0	68.0	67.0	66.0	65.0	64.0
Cellulosic CI	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Drop-In CI	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
No. of FCVs (1,000s)	0.9	2.0	3.0	4.0	10.0	15.0	20.0	22.9	29.2	39.8
No. PHEVs (1,000s)	0.5	20.0	45.0	70.0	110	150	200	261.2	336.5	425.6
No. of BEVs (1,000s)	3.0	5.0	7.0	9.0	20.0	30.0	40.0	53.9	81.1	118.8

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## Scenario 1

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Corn EtOH (bgal)	1.50	1.40	1.27	1.05	0.51	0.20	0.13	0.09	0.05	0
Cane EtOH (bgal)	0	0.08	0.18	0.38	0.76	1.46	1.41	1.33	1.16	0.69
Cellulosic (bgal)	0	0.01	0.04	0.07	0.22	0.36	0.57	0.87	1.31	1.95
FFVs (1,000s)	0	50	100	200	300	500	900	1,400	2,200	2,700
% time E85	50	50	50	50	50	50	50	60	60	60
Total EtOH (bgal)	1.50	1.49	1.48	1.49	1.49	2.02	2.11	2.29	2.52	2.64
Total E85 (bgal)	0	0.02	0.04	0.07	0.11	0.17	0.30	0.55	0.84	1.00
Total CARBOB (bgal)	13.5	13.3	13.1	12.9	12.6	12.0	11.7	11.4	11.0	10.7
Avg.% EtOH	10.0	10.1	10.2	10.4	10.6	14.4	15.3	16.8	18.6	19.8
An. Credits (1,000s MT)	556	704	538	401	144	807	-120	-480	-176	-104
Cum. Credits (1,000s MT)	556	1,260	1,798	2,199	2,343	3,150	3,030	2,550	2,374	2,270

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## Scenario 4

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Corn EtOH (bgal)	1.50	1.42	1.38	1.34	1.08	1.54	1.62	1.63	1.49	1.32
Cane EtOH (bgal)	0	0.07	0.15	0.24	0.51	0.72	1.00	1.32	1.58	1.85
Cellulosic (bgal)	0	0	0	0	0.07	0.14	0.26	0.36	0.54	0.79
FFVs (1,000s)	0	20	125	250	500	1,000	2,000	3,000	3,700	4,600
% time E85	100	100	100	100	100	100	100	100	100	100
Total EtOH (bgal)	1.50	1.49	1.53	1.58	1.68	2.41	2.89	3.33	3.64	4.00
Total E85 (bgal)	0	0.016	0.095	0.18	0.36	0.70	1.35	1.96	2.35	2.84
Total CARBOB (bgal)	13.5	13.3	13.1	12.8	12.5	11.8	11.2	10.7	10.3	9.8
Avg.% EtOH	10.0	10.1	10.5	11.0	11.9	17.0	20.5	23.8	26.2	29.0
An. Credits (1,000s MT)	556	652	398	121	-221	241	40	-100	-180	-449
Cum. Credits (1,000s MT)	556	1,208	1,606	1,727	1,506	1,747	1,787	1,687	1,507	1,058

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## Scenario 8

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Corn EtOH (bgal)	1.50	1.48	1.46	1.49	1.47	1.90	1.95	1.87	1.58	1.45
Cane EtOH (bgal)	0	0	0	0.05	0.17	0.23	0.37	0.48	0.80	0.88
Cellulosic (bgal)	0	0	0	0.016	0.10	0.13	0.22	0.33	0.44	0.61
FFVs (1,000s)	0	0	0	400	1,200	1,400	2,600	3,300	3,900	4,600
Drop-in Fuel (bgal)	0	0	0	0	0.043	0.042	0.12	0.22	0.31	0.44
Total EtOH (bgal)	1.50	1.48	1.46	1.55	1.74	2.26	2.54	2.68	2.82	2.95
Total E85 (bgal)	0	0	0	0.15	0.43	0.49	0.87	1.08	1.24	1.42
Total CARBOB (bgal)	13.5	13.3	13.1	12.9	12.4	11.8	11.3	10.8	10.5	10.0
Avg.% EtOH	10.0	10.0	10.0	10.8	12.3	16.0	18.2	19.5	20.6	21.9
An. Credits (1,000s MT)	556	564	183	5	1	0	0	1	1	2
Cum. Credits (1,000s MT)	556	1,120	1,303	1,308	1,309	1,309	1,309	1,310	1,311	1,313

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## California Premium

- Lower-CI fuels will be produced for RFS2
- Lower-CI fuels may command some premium price in California
- LCFS attracts disproportional share of lower-CI fuels
- Premium price may contribute to incremental cost of LCFS

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## Alternative Fuel Prices

- Cost of production
  - Expensive fuels produced when demand high
  - Technological advances reduce costs
- Carbon intensity
  - Lower is better
  - Better is more expensive

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## Moving Forward

- Convene Economics Subgroup
- Converge on price assumptions
- Finish economic analysis
  - Level commensurate with review task
  - Share before incorporation into final paper

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**Your comments on the full draft  
report are requested by  
NOVEMBER 17, 2011**

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- Staff will perform informal reviews and provide Board updates between now and 2015
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