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Summary – Preliminary Carbon Intensity Values for 2010 Baseline Crudes

This document contains preliminary estimates of carbon intensity values for crudes supplied to California refineries during 2010. The Marketable Crude Oil Names and respective volumes were provided to ARB by the California Energy Commission. The carbon intensity estimates were made using the Oil Production Greenhouse Gas Emissions Estimator (OPGEE Model version 1.0, Draft version A). A detailed description of the model input parameters used to make these preliminary estimates is contained in the companion Excel document. We very much welcome comments from stakeholders on the OPGEE model and the input parameters used to make these preliminary estimates. In particular, we highly encourage oil companies and governments to provide crude oil production data that will help to make these estimates better. Based on comments and data received from stakeholders, we intend to revise the model and update these estimates. The revised model and estimates will then be included as part of a 15-day Change Notice to be released later this summer.

Contained in this document are the following:
Table 1: Preliminary Carbon Intensity Values for 2010 Baseline Crudes
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Table 1: Preliminary Carbon Intensity Values for 2010 Baseline Crudes

Description	Use (bbl)	CI (g/MJ)
CA Average	231,420,000	12.1
ANS	86,382,000	14.5
Saudi Arabia		
• Arab Ex. Lt.	24,349,999	9.9
• Arab Lt.	45,755,141	12.5
Equador		
• Napo	19,552,878	8.3
• Oriente	45,689,775	10.5
Iraq – Basrah Lt.	46,939,835	15.9
Russia - ESPO	17,802,032	13.4
Canada		
• Federated	628,364	8.3
• Koch Alberta	189,694	8.2
• Sweet Mixed	1,871,099	8.3
• Albian Heavy Syn	4,560,973	28.6
• Cold Lake	9,736,048	19.1
• Suncor Syn A	1,261,520	26.4
• Suncor Syn C	1,472,383	26.4
• Syncrude Sweet	2,847,112	22.1
Brazil		
• Albacora Leste	4,399,684	7.0
• Frade	991,259	6.4
• Marlim	13,200,519	7.0
• Marlim Sul	1,780,305	8.6
• Ostra	1,057,309	6.0
• Polvo	986,563	5.8
Colombia		
• Castilla Blend	7,991,860	7.9
• Vasconia	2,443,605	7.4
Angola		
• Dalia	4,669,678	8.1
• Girassol	1,257,982	9.9
• Greater Plutonio	1,116,972	9.0
Peru		
• Loreto	4,165,476	7.0
• Mayna	890,366	8.2
Oman – Omani Blend	4,026,126	13.3
Argentina		
• Canadon Seco	1,569,902	10.6
• Escalante	919,027	8.1
• Hydra	379,435	6.9
Venezuela		
• Boscan	178,157	15.3
• Petrozuata	721,236	22.6
• Zuata Sweet	359,793	22.5
Kuwait		
• Eocene (Wafra)	888,546	9.0
• Ratawi (Wafra)	399,494	10.1
Australia - Pyrenees	644,757	6.1
Cameroon - Lokele	600,239	23.8
Nigeria – Bonny Lt.	473,835	18.3
Trinidad - Calypso	180,527	7.5
2010 CA Baseline	**596,751,505**	**12.5**

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Table 2: Preliminary Carbon Intensity Values for California Fields (Fields with greater than 2000 BOPD)

Field	Oil (BOPD)	CI (g/MJ)
Midway-Sunset	88788	19.6
Kern River	75004	8.7
Belridge, South	72522	13.9
Cymric	42399	18.6
Wilmington	36577	7.2
Elk Hills	35548	4.3
Lost Hills	31321	10.4
San Ardo	16571	26.7
Coalinga	15448	23.6
Hondo	13935	3.5
Ventura	12474	5.4
Pescado	11201	3.1
Sacate	8690	2.0
Belridge, North	8045	5.2
Kern Front	7693	23.7
Round Mountain	7331	23.7
Inglewood	7227	11.2
Poso Creek	6812	23.9
Point Pedernales	6025	6.0
Point Arguello	5726	8.4
McKittrick	5526	14.1
Huntington Beach	5004	7.4
Long Beach	3987	5.7
Beta	3939	1.6
Sockeye	3613	5.1
Brea-Olinda	3288	2.6
Dos Cuadras	3173	3.7
Orcutt	2947	12.2
Belmont, Offshore	2395	3.9
Elwood, S., Offshore	2385	4.7
Beverly Hills	2244	3.4
Edison	2044	8.4
Placerita	2040	28.6
Buena Vista	2000	13.0

Table 3: Preliminary Carbon Intensity Values for Alaska North Slope Fields

Field	Oil (BOPD)	CI (g/MJ)
Badami	221	12.2
Beaver Creek	130	7.7
Colville River	90095	7.5
Endicott	11461	25.2
Granite Point	1806	7.1
Hansen	74	10.4
Kupuruk River	127995	9.0
Mcarthur River	3850	14.5
Middle Ground Shoal	2585	5.7
Milne Point	26646	7.3
Northstar	16803	21.5
Oooguruk	10194	6.6
Prudhoe Bay	305852	19.2
Swanson River	520	10.0
Trading Bay	551	8.2
W MCarthur River	708	7.0

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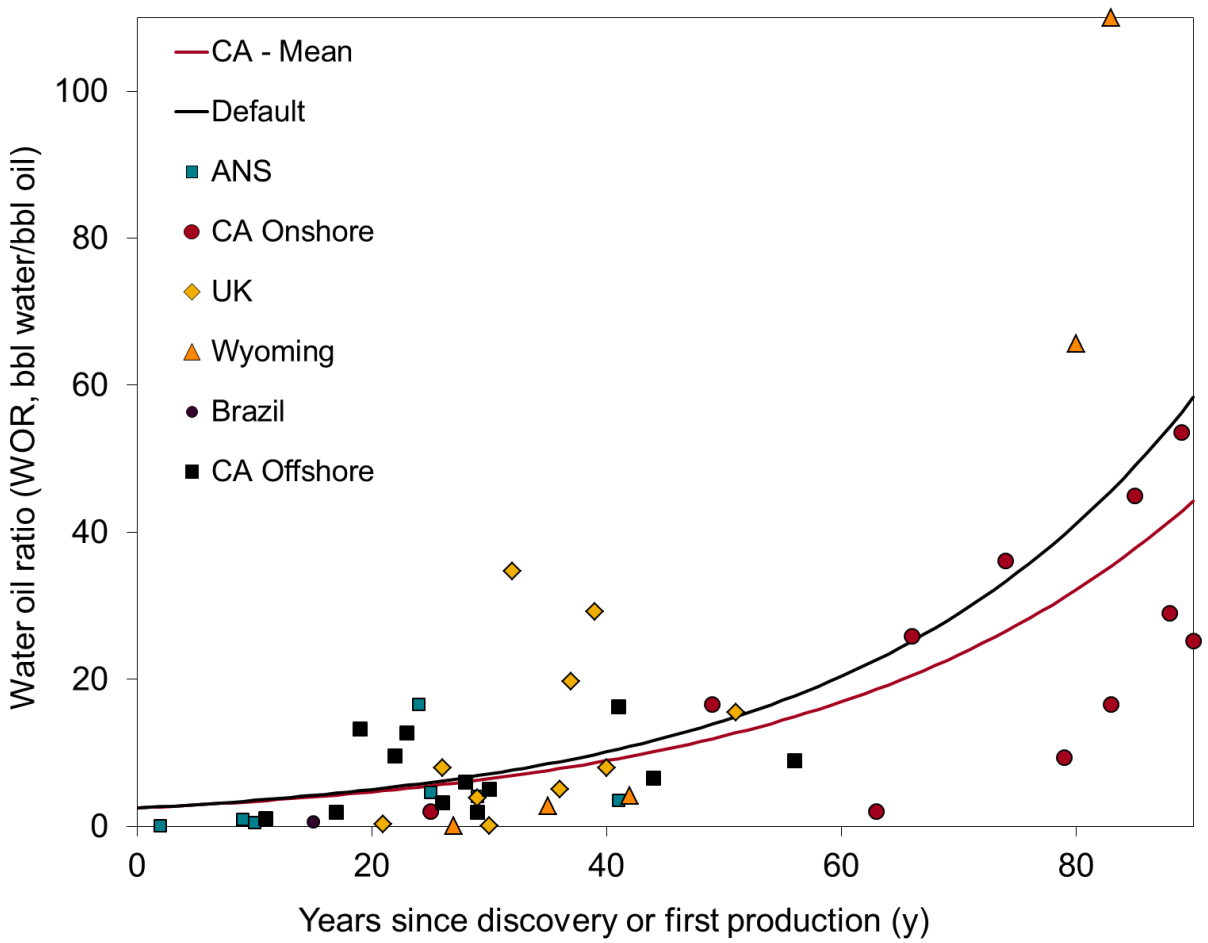
Chart 1: WOR Smart Default (Replacement for the WOR Smart Default discussed in model documentation)
In the absence of field-specific data on water-to-oil ratio (WOR), an estimate of WOR was made using the field start date. The chart below shows the default relationship. Some known values of WOR are plotted as a comparison to the default relationship.