

To: SSC Members  
From: NGOs  
Date: July 1, 2011  
Re: NGO Proposals for Remaining Sensitivity Decisions

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Currently we have four sensitivities reserved for scenario development.

As the Chairs pointed out in their memo, reserving four runs would appear to be adequate, allowing an optional scenario to be presented to the SSC for decision. We agree, and we propose the following approaches on the remaining runs.

1. NGO Recommendations for **Future 8 Runs**.

Since Future 8 is the Future proposed by the NGO Sector, the NGOs were asked to decide if they wish to propose any changes to the existing Future 8 sensitivities and, if so, what specific changes.

As a preliminary matter, the NGOs believe the Future 8 base run must be run as initially intended – with increased DR, DG and EE reductions similar to (or perhaps identical to) the Future 4 assumptions on DR, DG and EE.

With regard to Future 8 sensitivities, the NGOs propose to change only sensitivity 4 for Future 8, altering it to be a 40% RPS with 45% penetration limits (instead of 40% as is currently planned) for the intermittency regions. This should allow the RPS targets for this sensitivity to be achieved. This also mirrors the methodology used in Futures 5 and 6 where the penetration limits are set at 5 percentage points above the RPS mandate. This prevents overly constraining the capacity expansion in NEEM and allows the model to efficiently allocate generation resources across the interconnection to meet policy mandates.

2. Recommendations on the remaining unresolved sensitivities:

**Use of two available sensitivities.** The group has agreed that the high carbon price sensitivities in Futures 2 and 3 will not be valuable. Several alternative uses have been discussed. They include:

a) Running *one* additional low carbon price sensitivity (in Future 2) as discussed on the June 22, 2011 call – i.e., to flatline the 2030 carbon price from Future 2 base run from 2030 to 2050. This proposal will use up one of the available sensitivities. The NGOs believe that this sensitivity could be useful, but that the SSC should explicitly note that this sensitivity will *not meet the carbon goals of the future* (80% CO<sub>2</sub> reduction by 2050) in CRA's model.

CRA's use of a carbon price in Future 2 to get the required reductions in CO<sub>2</sub> emissions resulted in a very high Carbon price by and beyond 2030. By "flatlining"

the price after 2030 in this sensitivity, we will not be correcting the modeling limitations that caused this result. It is important to note that CRA's model has a very limited ability to choose the most cost effective ways to reduce Carbon emissions in the non-energy sectors or to minimize Carbon mitigation costs.

All non-energy sector carbon reductions occur in the MRN part of the model. In the motor vehicle sector, for example, the MRN inputs (out to 2050) such as MPG or alternative fuel VMT (vehicle miles traveled) options do not reflect the potential for significant innovation, and thus are not analogous to the SSC's choice of relatively aggressive efficiency implementation in the electric sector (NEEM) of the model. In the other non-energy sectors, macroeconomic parameters (e.g., elasticities of substitution) are unvarying over time. Thus, for example, within the MRN part of the model there is:

- An absence of low cost, demand-side abatement options in the non-energy sectors (e.g., industrial, household, or commercial sector efficiency options; changes in behavior or consumption, etc).
- Minimal representation of the potential for innovation in the motor vehicle sector, especially in the out years;
- Minimal accounting in general for significant technological advances associated with non-electric sectors' fossil fuel consumption.

And, for example, within the MRN and NEEM models there are:

- No cost containment measures (temporal or geographic offsets, banking of emission allowances, etc.).
- No capacity to look outside the US for lower cost carbon emission reduction options.

See also attached diagram which notes a number of the "offsets" and/or CO2 price reduction mechanisms that do not appear to be included, or fully accounted for, in CRA's model.

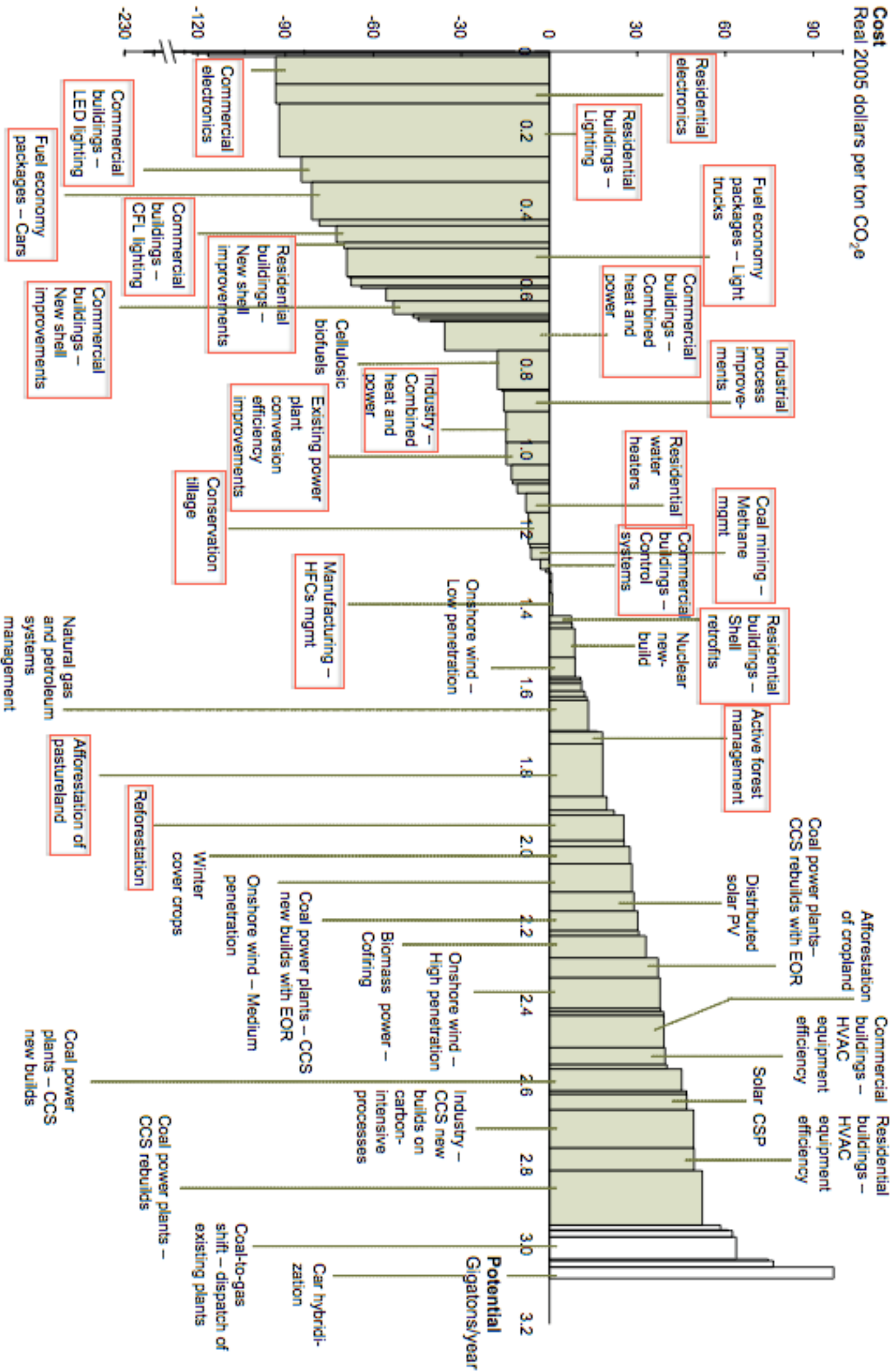
b) Using one of the sensitivities for a high (50%) intermittency limit run in Future 2 because the intermittency limit has been a significant driver of results in Futures 2 and 3. This would use up the last available run. *[The Chairs suggested running this sensitivity in Future 8 which would also be acceptable to the NGOs].*

**3. MRN Runs.** At our last in-person meeting, CRA stated that it would be using the Future 2 MRN economic assumptions in Future 3 for comparability. On our recent call, CRA indicated that they would take the same approach with Futures 5 and 6 if

no one objected. CRA also intends to use the results of Future 1 (BAU) MRN run for Future 4. *The NGOs agree with these recommendations.*

New MRN runs are proposed for Futures 7 and 8. The NGOs believe that a new MRN run is appropriate for Future 7 but that the MRN outputs for Future 8 should be frozen rather than allowing MRN to re-equilibrate with NEEM in Future 8. The SSC agreed to freeze MRN at the BAU outputs for Future 4 to avoid reflecting the additional EE and DR in that future as impacts to GDP. Similarly, the inputs for Future 8 should not be re-equilibrated with MRN so that the demand side measures in Future 8 are not inappropriately interpreted as reduced economic output.

# U.S. MID-RANGE ABATEMENT CURVE – 2030



Source: McKinsey analysis

= Abatement Options Not Available As Incremental Abatement Options in MFRN-NEEM