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Emissions Reduction Fund project aggregation by meat processors

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Executive summary

This short report outlines the opportunities available to processors to participate in the Emissions Reduction Fund (ERF) as aggregators working with cattle producers across their supply chain. Aggregation under the ERF refers to the process by which emission reduction activities are brought together in order to create economies of scale, overcome high transaction costs and manage performance risk.

In order to provide processors with an overall sense of the revenue potential of ERF project aggregation, we performed modeling that assumed participating producers across QLD and NSW were each able to reduce their emissions intensity by approximately 10%, resulting in emissions reductions of between 100 and 140 tCO_2e per farm per year. By assuming that 25% of cattle passing through two representative processing facilities were sourced from 'low emission' producers, we estimate that approximately 300,000 carbon credits would be aggregated over the seven year crediting period of the ERF project.

Based on this analysis, the report suggests there may be opportunities for processors to act as aggregators under the ERF; using the 'herd management' method to quantify methane reductions achieved via on-farm productivity improvements. The report provides some high level suggestions as to how processors may structure their aggregation initiatives to incentivise participation by livestock producers in their supply chains.

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1. About the Emissions Reduction Fund

The ERF is a carbon offsets scheme that provides economic rewards to producers who take steps to reduce greenhouse gas (GHG) emissions. Under the ERF, landholders are able to earn carbon credits from a variety of activities including:

- Reducing livestock emissions
- Increasing efficiency of fertiliser use
- Enhancing carbon in agricultural soils
- Managing savannah wildfires
- Sequestering carbon through revegetation and reforestation.

Actions that reduce greenhouse gas emissions are referred to as 'abatement activities'. They reduce emissions in one of two ways: by storing carbon in soil or plants (sequestration projects) or reducing emissions of carbon and other harmful greenhouse gases (emissions avoidance projects). Each tonne of carbon dioxide equivalent (CO_2e) emissions that is reduced or stored by an ERF project will be rewarded with one Australian carbon credit unit (ACCU).

Through the ERF, the Government has budgeted $2.55 billion to purchase ACCUs at the lowest price from across the economy, using a reverse auction format. Processors wishing to act as an aggregator may bid at ERF auctions and, if successful, obtain a contract to supply ACCUs to the Government at their bid price.

2. Requirements for participation

Participation in the ERF is complex and involves establishing the eligibility of emission reduction opportunities, registering projects, ongoing data collection, management of periodic independent audits and finally the issuance of ACCUs. The figure and table below provides a summary of the stepwise process for processors to follow should they wish to develop ERF projects and participate in auctions.

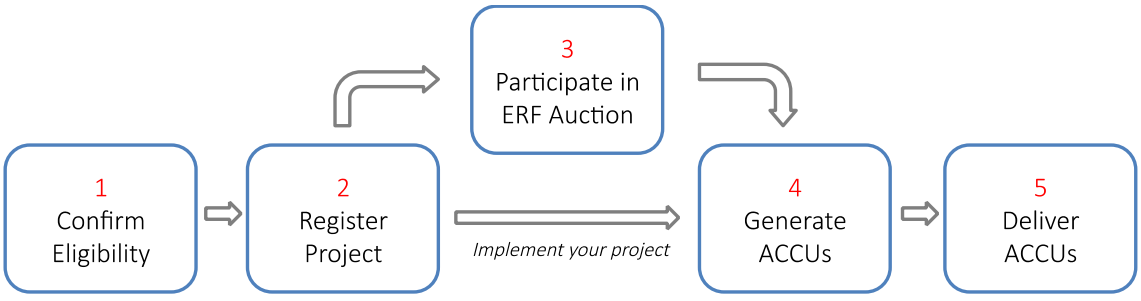

Figure 1 – Process for ERF participation

Table 1 – 1 ERF Participation Checklist

STEPS	CHECKLIST
STEP 1 **Confirm Eligibility**	✓ Confirm that your proposed activity meets the applicability requirements of an **approved method** ✓ Confirm the **project is a new initiative** (has not commenced) and is not required by law or another Government program ✓ Develop a **financial model** for your project including sensitivity analysis of ACCU price and volume ✓ Assess the benefits and costs of **project aggregation** ✓ Confirm you have all the required permits and hold the **legal right** to undertake the project
STEP 2 **Register Project**	✓ Apply to register your project ✓ Calculate a **Forward Abatement Estimate** and receive an audit schedule ✓ **Open an account** with the Australian National Registry of Emission Units (ANREU) ✓ Approved projects are **published** in the Emission Reduction Fund Register
Note that Steps 3 and 4 can be reversed	
STEP 3 **Participate in an ERF auction**	✓ Understand **contract requirements** including commercial terms ✓ **Register and bid** in an ERF auction ✓ If successful at auction **contract commences** with the Australian Government
STEP 4 **Generate ACCUs**	✓ After project registration **implement your project** according to the chosen method ✓ **Monitoring and record keeping** established as per the chosen method ✓ **Calculate abatement** from your project and submit an offsets report for a reporting period as per the chosen method ✓ Submit audit reports according to your **audit schedule**

STEPS	CHECKLIST
STEP 5 **Deliver of ACCUs**	✓ Apply for an **Abatement Statement** to claim ACCUs ✓ **Deliver the ACCUs** to the Clean Energy Regulator as per contract ✓ Clean Energy Regulator **transfers payment** equal to the contracted price to your nominated bank account

For further detail on each of the steps outlined above, as well as access to forms and paperwork required for participation, visit the website of the Clean Energy Regulator: http://www.cleanenergyregulator.gov.au/ERF/Pages/default.aspx

3. Herd management method

In order to participate in the ERF, projects must utilize an approved 'method'. Each method outlines an approach to quantify and verify a reduction in GHG emissions, as well as setting out the eligibility criteria for implementing project activities.

This analysis focuses on the draft ERF method '*Beef cattle* h*erd management'* which is expected to be approved in the second half of 2015. The Department of the Environment is responsible for the development of new ERF methods, and as such the results and analysis in this report are subject to change based on the final format and structure of the method.

The beef cattle herd management method reduces emissions by improving herd feed efficiency in pasture based production systems. This is achieved by altering the major herd productivity factors such as: weaning rate, survival rate, age at first calving for heifers, and growth rate in young cattle. The method is not restricted to one particular way to achieve this improvement, and many different changes can be combined to improve productivity. In general, improvements to animal health and survival, feed quantity and feed quality are the big influences and as cattle producers these factors are well understood.

Wiedemann et al. (2015)[1] showed that weaning percentage explained 33% of the variation in GHG emissions intensity for Australian beef cattle herds, via the impact on whole herd feed efficiency and therefore enteric methane intensity. This is one of the largest variables that can be manipulated to alter emissions intensity. The targeted reduction in emissions intensity for the grow-out stage is via improved growth rate (average daily gain - ADG) resulting in heavier finishing weights for the same grow-out time period. Wiedemann et al. (2015) showed that ADG explained 47% of the variation in GHG emissions intensity for Australian beef cattle herds, via the impact on feed efficiency and therefore enteric methane intensity.

[1] Stephen Wiedemann, Eugene McGahan, Caoilinn Murphy and Mingjia Yan, "Resource use and environmental impacts from beef production in eastern Australia investigated using life cycle assessment." *Animal Production Science,* April 2015.

4. Aggregation opportunities for processors

Aggregation under the ERF refers to the process by which projects or abatement activities are brought together in order to create economies of scale, overcome high transaction costs and manage performance risk[2]. Under this approach, individual producers would undertake emission reduction initiatives by applying the herd management method on their grazing properties. These individually small initiatives, in geographically dispersed locations would be aggregated by processors to form an ERF project. Scenarios examined (discussed below) also produced larger numbers of animals for sale, increasing farm output and profitability. While the production levels modelled in the scenarios below are feasible, they require improved management skills and therefore uptake of the scenarios may be limited due to the skills of the producers.

Processors could consider designing an aggregation program to drive on-farm production and meat quality improvements, with payments to producers linked to meeting productivity benchmarks in the form of a *premium price paid per kg of beef*. The close link between productivity improvements and methane reductions realised through the herd management ERF method could enable a platform designed to reward premium suppliers with higher prices for beef, with such premium payments funded through the creation of ACCUs in respect of on-farm methane reductions.

The aggregation platform has the potential to create a virtuous cycle for processors by deepening supplier relationships and potentially recruiting new suppliers through the provision of premium payments, driven by on farm productivity improvements and underpinned (and funded) by the generation of ACCUs.

5. Emissions reduction scenarios

In order to estimate the emission reduction potential of applying the heard management method we assessed selected project scenarios applied to QLD and NSW cattle farms using ABARES survey data to establish baseline performance. Both NSW and QLD farms had self-replacing herds and grew out cattle for the grass finished market. It was assumed at the QLD average farm that cattle were produced for the export market, while cattle were produced for both the domestic and export markets at the NSW average farm. These farms were assumed to produce cattle for meat processors representative of those operating across eastern Australia.

We assumed that new management techniques were applied in order to improve weaning percentages in the breeding herd, and increase the rate of weight gain in young growing cattle. As a result of these project activities abatement potential ranged between 100 and 140 tCO_2e per farm per year.

[2] ACCUs are regulated by ASIC as financial products. There may be financial services licence requirements involved in the establishment of an aggregated project. Further information is available through the ASIC website: http://asic.gov.au/regulatory-resources/financial-services/carbon-markets/

6. Value proposition

In order to provide processors with an overall sense of the revenue potential of ERF project aggregation, we performed modeling that assumed participating producers across QLD and NSW were each able to reduce their emissions intensity by approximately 10% resulting in emissions reductions of between 100 and 140 tCO_2e per farm per year. This farm level abatement was scaled up to assess the potential emissions reductions achieved if 25% of beef processed at two facilities (one in QLD and one in NSW) were sourced from these higher efficiency herds and aggregated under ERF projects. Under this scenario the aggregated ERF projects would involve 385 participating producers and generate 300,000 ACCUs over the course of the seven year crediting period.

In addition to assessing the ACCU generation and revenue potential, we included estimates of the direct carbon related costs including up front project registration costs and ongoing monitoring, reporting and audit fees. Processors should also be aware of further program coordination and management costs, as well as the cost of any premium payments or services provided to producers that meet production benchmarks and KPIs.

These results indicate that there is considerable potential for processors to run an ERF aggregated project that would incentivize implementation of improved cattle management practices amongst producers and potentially garner improved supplier loyalty through provision of premium payments.

Figure 2. ERF Aggregation Platform Emissions Reduction and Financial Performance

ERF Project Aggregation Summary			
Method	**Producers**	**Projects**	**ACCUs**
Herd Management	385	2	315,315
ERF Aggregation Financial Summary			
Total Revenue			$ 4,398,644.25
Total Carbon Expenses			$ 787,333.33
TOTAL Income			$ 3,611,310.92

Assumptions
The following assumptions were used to develop the results listed in Table 2:

Participants	Farms	385
Base ACCU Price	$/tCO2e	$13.95
ACCU sensitivity	% of modelled	100%

7. Conclusion

The results presented in this report suggest there may be opportunities for processors to act as aggregators under the ERF; using the herd management method to quantify methane reductions achieved via on-farm productivity improvements. Through such a program, processors would engage with suppliers and provide them with incentives to improve their productivity, for example by providing premium services or pricing in exchange for committing to meet prescribed performance benchmarks. These benchmarks would be based on well understood BMPs for indicators such as reproductive performance and growth rates. Data collected through the program would enable the generation of ACCUs with ERF revenues funding the implementation of the program and offsetting the cost of incentives provided to participating cattle producers.