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ARFVTP Merit Review:
Biofuel & Biomethane Project Success

Sacramento, CA
9/18/2015

Harry Simpson
President

Crimson and its ARFTVP funded project

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- Owns and operates what is now the largest biodiesel production facility in California
- Mostly internally developed biodiesel production technology /process
- Runs primarily on used cooking oil but also utilizes inedible corn oil from ethanol plants and animal fats
- Biodiesel sold to major oil companies (i.e. Chevron, Tesoro, Valero, Shell, etc), fuel wholesalers and truck stop operators
- Prior to ARFTVP funding, Crimson plant was maxed out at 10 million gallons per year (MGPY)
- ARFTVP funding goal = expand production to 22 MGPY with improved sustainability and ability to run more ultra low carbon feedstocks

Achieving and measuring ARFVTP success

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- ARFVTP project goals
  - Increased output of renewable transportation fuels
  - carbon reduction
  - increased sustainability
  - Economic development? Investment by the State of California to realize economic benefits from its carbon reduction policies
- Crimson's ARFVTP project goals
  - Multiphase project over 2 years to increase biodiesel production to 22 MGPY
  - Reduce carbon intensity of Crimson biodiesel, pending economics and availability of very low carbon feedstocks
  - Reduce water utilization for each gallon of biodiesel produced
  - Improve amount of energy used for each gallon produced

Crimson's actual progress to date

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- ARFTVP grant signed 12/30/2013 and was already CEQA approved
- Construction of first phase began April 2014
- Crimson has completed 60% of the project thus far
- We are a bit behind schedule >will complete in late Q1 2016 vs the Q3 2015 timeframe that it originally submitted in its ARFVTP proposal back in Jun 2013
- Crimson's current production rate is 18+ mil gal annualized > this is well above commitment to CEC for this point of the project
- Crimson is producing a very low carbon biodiesel with 11 to 16.5 CI > in line with what we submitted to CEC
- Have seen a slight decrease in unit water utilization and improvement in unit energy utilization, expect more upon completion
- Project is costing a bit more than the original budget submitted in June 2013 > so needed more matching funds but hey that's my problem, not the CEC's right?
- Employment expansion as planned

Why was the Crimson ARFVTP project successful?

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- We actually had the matching funds (no chicken & egg problem)
  - Crimson matching funds was not feedstock or other elements that are ultimately post-project working capital
  - Crimson had the necessary matching funds at the time ARFTVP grant was awarded and contracted and was prepared for costs exceeding estimates
- Strong prior experience and internal team
  - We had already built a biodiesel plant that was moderately successful
  - All leaders of Crimson operations and engineering team had multiple years of large-scale biodiesel experience before they joined Crimson
  - Thus we avoided many of the pitfalls that can plague a project lead by a team lacking the specific experience of building and operating large scale biodiesel plants
  - Crimson had already proven its ability to market large volumes of biodiesel and mange associated market risks (not "build it and they will come")
- Strong project partner
  - Technology / equipment provider had a very strong prior track record of successfully building large scale biodiesel plants AND bonded performance
  - This means that the technology will produce at the level advertised for the feedstock that will actually be used
- These are all elements that should be FULLY vetted by the CEC prior to awarding ARFVTP funding

Pitfalls and how to avoid them

- Building renewable fuel production facilities that actually work is very complex and difficult
- Successfully operating the asset once built can be equally difficult
- ARFTVP means that the CEC is now a venture capitalist >> must have a very strong and thorough vetting process
  - This is where it starts and perhaps ends
  - Show me the money for the match AND a cushion beyond this
  - Has the applicant and their internal team really done this before or at least something very similar?
  - Can the external partners really execute? How to manage construction risk
- Need for peer review
  - CEC staff do not have the experience or required depth of knowledge
  - Using NREL for high level technology viability assessment is inadequate
  - Need to assess business plan and long term market and business viability
- Need to be sure project can survive long term
  - Waste of taxpayer money if asset is built and the facility can't produce AND market output or the asset cannot survive adverse market conditions
  - Long term offtake agreements don't typically exist for renewable transportations fuels – issues with LT offtake for RINs and LCFS credits
- Stick to hard metrics, be honest about the results, and apply the results to future program implementation

Summary

- Crimson project has delivered on its project objectives in a timely fashion – CEC got what it paid for
- Success because we had the money for the match including cost overruns, we had the internal experience and prior track record
- ARFTVP success starts and perhaps ends with a very strong application review / vetting process
- Must have the money in hand – avoid the chicken and egg problem – or at least a defined timeframe to show the money
- Need to be sure project can survive long term otherwise it's a waste of taxpayer money and CEC time & credibility
- One last thought: Is the current application of ARFTVP – matching grants for building renewable production assets – the best way to achieve state policy goals??
  - **Many would say the private market does a better job as venture capitalists / private equity shops**
  - **Performance based incentives allow the state to get exactly what it pays for and the private capital markets will invest accordingly**



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THANK YOU

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