

Tuireann Energy Ltd



- Focus: Disruptive clean emissions technologies.
- Research initiated in 2010 Düsseldorf, Germany.
- Irish company founded in March 2017.
- Science lab and manufacturing facility in Ireland.
- Targeting automotive industry, generator users, trucking & logistics industries.
- Goal: Contribute to a sustainable change in the energy & automobile industry.

Who we are - Senior Management Team



Alan McDonnell, Business Development Director

Hons Degree – B.Sc in Applied Physics DCU

MBA Smurfit Business School, UCD



Samuel K. H. Jun, Research Director

Ph. D. with Amorphous Silicon Solar Cells

Research Professor at KAIST

Researcher at Research Center Juelich, Germany



Gianni Matera, Company Director

Founder of Growing Capital

Angel Investor – Enterprise Ireland Co-Investments



Technology Achievements to date



- Developed an innovative ‘nanofluid’ fuel additive called T1.
- 1000s of hours of emissions & efficiencies testing (Lab & Road).
- Developed unique method for manufacturing T1.
- Developed an innovative method for injecting T1 into engines.
- Strong connections with Universities – projects under execution.
- Filed patents to Korea, UK and PCT.
- Awardee of Seal of Excellence by EU Committee (H2020).
- Reduced harmful emissions such as NOx significantly and improved efficiencies on average 10% in vehicles and generators.

Our Strategy



- Design & manufacture nanofluid combustion catalysis technology.
- Validation and Optimisation of the technology through
 - partnerships with academic institutes
 - collaborations with experts in engine technologies
- Run friendly user trials to obtain feedback.
- Publish academic results in conferences & journals.
- Find a long term partner.

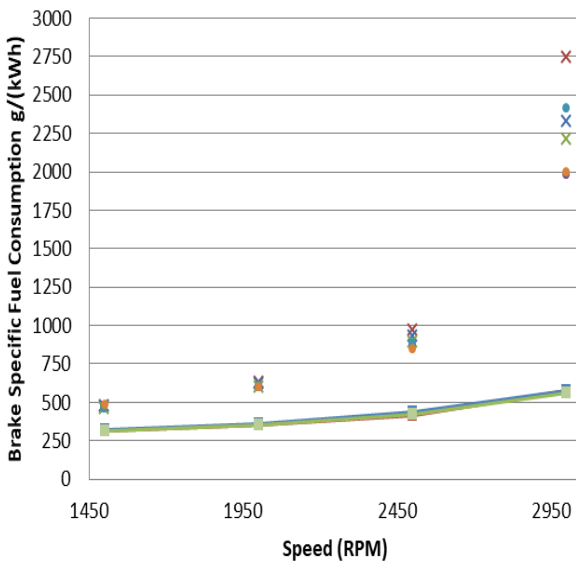
Lab Test of T1 / T2 as fuel additive

Evaluation by University of Brighton (2019)

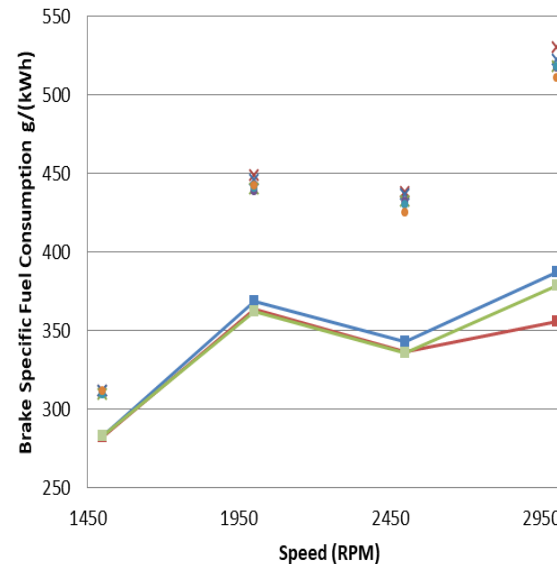
AVL Dyno system with VW Gasoline 1.0 L engine



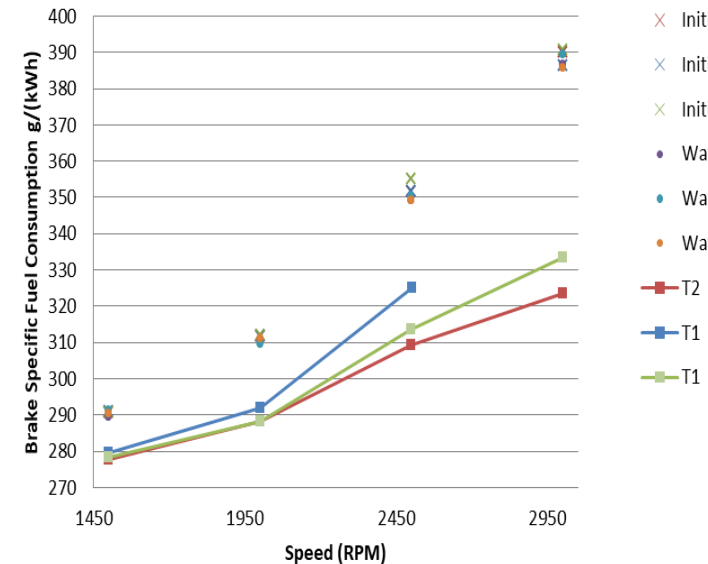
Throttle Position at 15%



Throttle Position at 25%



Throttle Position at 35%



Lab Test of T1 / T2 as fuel additive

Evaluation according to Korean government standard set-up (2014)



Hyundai NF Sonata Gasoline 2.0 L

4th gear

Speed [km/h]	40	50	60	70
Baseline FE [km/l] (a)	16.9	16.0	15.1	14.2
Additive FE [km/l] (b)	19.4	17.8	16.7	15.3
%Difference = (b-a)/a	+14.6%	+11.4%	+10.6%	+7.9%



5th gear

Speed [km/h]	60	70	80	90	100	110	120
Baseline FE [km/l]	16.5	15.6	14.6	13.5	12.4	11.1	9.8
Additive FE [km/l]	17.6	16.8	15.7	14.6	13.2	12.4	11.3
%Difference = (b-a)/a	+6.8%	+7.8%	+7.9%	+8.2%	+7.0%	+11.4%	+15.4%

Lab Test of T1 / T2 as fuel additive

Evaluation according to Korean government standard set-up (2014)



Kia Soul Gasoline 1.6 L Automatic Transmission

Speed (Km / h)	Baseline Fuel Efficiency (Km/L)	T1 Injection Fuel Efficiency (Km/L)	Fuel Saving (%)
40	17.0	23.1	36
50	19.4	21.8	12.7
60	19.0	22.5	18.4
70	19.5	21.1	8.2
80	18.9	19.3	2.2
90	16.9	17.1	0.9
100	14.8	15.2	2.8
110	12.7	12.9	1.5
120	11.2	11.6	3.6

	CO (mg/Km)	NOx (mg/Km)
Baseline	134	7
T1 Injection	114 15% reduced	3 57% reduced



CVS 75 Mode (equivalent to FTP 75 Mode)
confirmed CO and NOx reduction.

Generator Tests

Energy production with 3 kW gasoline generator (2018)

9.5 % enhancement of energy production via air intake injection.



Energy production with a 5 kW diesel generator (2018)

8.0 % enhancement of energy production via air intake injection.

Condition	Mixing Method	Fuel saving	CO	NOx
Product D	1% mixing with fuel	2.3%	8% decrease	5% decrease
Product S	0.05% mixing with fuel	1.7%	15% decrease	4% increase
Product E	0.1% mixing with fuel	2.3%	9% decrease	3% increase

