Company
Business areas
Energy Management

Who is ACTARON?

Specialized Consulting and Engineering Company located in Burgenland

System- and Safety Engineering

Independent: 100% owned by the Management

Team: Professionals and Experts with industrial experience in the area of electric storage and drive systems and system safety.

ACTARON **System- and Safety Engineering, Studies**

- **Functional Safety**
- **System Safety**
- **Academy**

Safety Assessments AVQ

The History:

2011-2014 Development of scalable Lithium-Ion Batteries
Foundation brand ACTARON: **ACTARON®**

2015 Consulting/System Engineering, product dev. process

2017 Intellizell Partner: E-mobility Cluster Regensburg

2019 Limited company in Moedling / Vienna
Aviation project and space studies

2023 Photovoltaics, Energy management, Building automation, Drive by wire

2024 Smart homes, Agri-PV and Tech for Carbon farming

Company, Focus, References

Facts: ACTARON

Smart home and Smart grid

- Building Automation
- Total Cost of Ownership for Smart Grids

Battery Storage Systems - Lithium-Ion Battery

- Dimensioning Battery Storages, Peak Shaving and load shift, Autonomy and Grid Stabilisation
- V-model development of Lithium-Ion batteries for reliable and safety-relevant systems.

Aerospace – Safety and Certification

- Safety in Experimental Smart Wings- Study
- Unmanned and manned Flights control
- Space: Software Product Assurance

High tech for Carbon Farming

Concept Development for Innovative Projects:

- Concept automated battery change systems.
- Hybrid Powertrain and steer-by-wire systems

E-MOBILITY

AEROSPACE

ENERGY MANAGEMENT

E-Powertrain and Energy Storages

Reliability Engineering FMEA	**System and Battery Requirements, Supplier Selection& Mgt.**			**Hybrid Engineering**
	Fuel Cells Flow Battery Systems	**System FMEA Simulation Test Bench**	**Charging Concepts**	
			Li- Ionen Battery Pack Assembly Mgmt	
		Second Life Concepts of Li-Ion- Batteries, Service & Disposal		

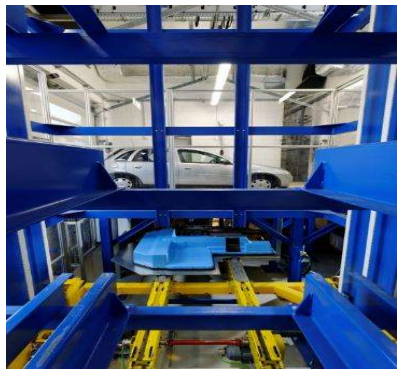
ACTARON supports with…

…the development of batteries and electric energy storage systems together with pilot-facilities.

Industries: Automotive, E-Bikes, Mobile Working Machines, Photovoltaic, Med-Tech, Space

Reference Projects Charging and Automation

Battery Change Station Risk Analysis:
ACTARON did a risk analysis of an automated battery changing station.



Analysis Inductive Charging System:
ACTARON has analysed the concept of inductive charging. Top-level system requirements and review of architecture and project design.
The license plate was used as reference for the two achsis positioning of the induction plate.

Risk analysis battery storages:
ACTARON regularly moderates the risk analysis of battery storage modules for automotive and stationary applications. (Energy supplier, automotive supplier)

Hybrid Energy Systems

Techno-economic Analysis Battery Energy Storage Systems

Overview Regulations & Standards

Choosing suitable technology

Reviewing Economic concept of BESS

Total cost of ownership & Net present value

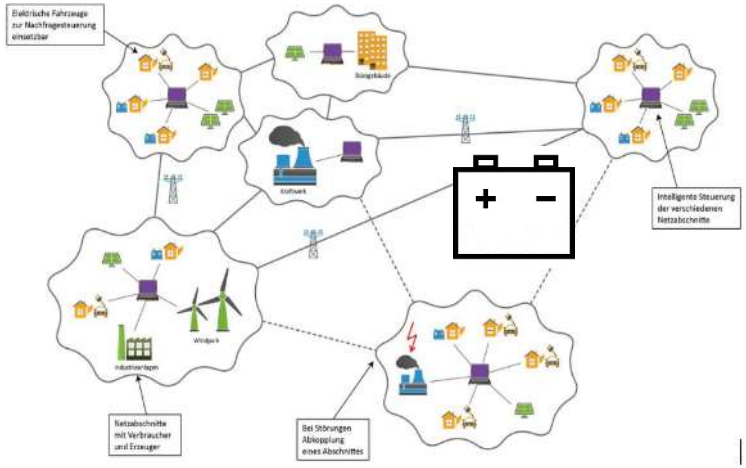
ACTARON supports with…

- Analysing the technical and economic feasibility of your BESS project
- State-of-the-Art Knowledge
- Overview of relevant regulations and standards
- Choosing suitable applications for BESS
- Calculating the profitability of BESS via TCO and NPV

Referenceprojects Smart Grid, Hybrid Energy

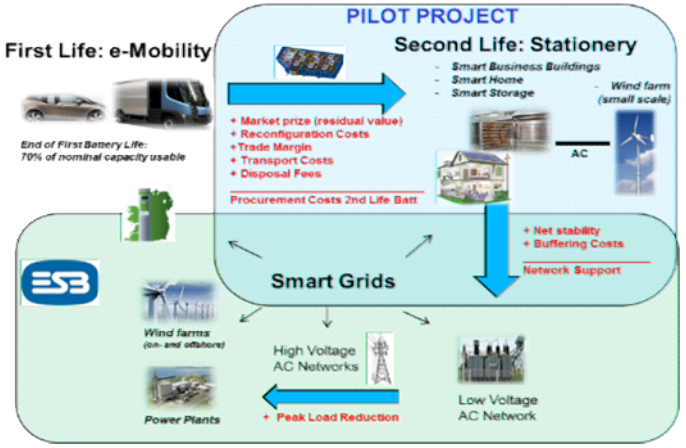
Storage Concept for Power Grid Stabilization:

ACTARON has developed a concept for economically benefitial storage system for grid stabilization for a village in Germany.



TCO of Storages in „Wind Powered“ Grid :

ACTARON has analysed the Total Cost of Ownership and Applied Operation of a Motive “Second-Life” Lithium-ion Battery for Stationary Applications (Dublin, Ireland)



Customer projects energy management

Energy management, PV surplus usage

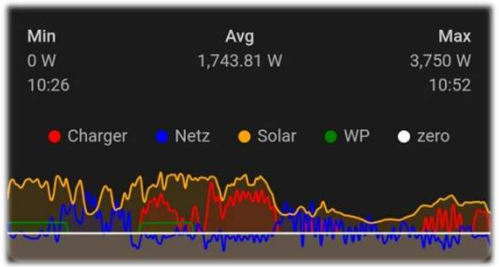
Electric car fleet & Electric heat pumps
Other distributable power appliances.

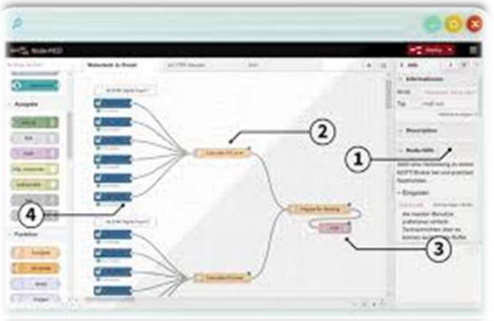
- Power distribution model (priorities)
- Energy management – control algorithm
- PV forecast
- Battery integration (strategies)
- Flexible electricity tariffs

Concepts, System and software requirements, low-level programming, automation system integrations, building automation

Industrial energy management

- Open source software
- Standard Broker (e.g. MQTT)
- Standard Hardware (Server, NAS, LAN etc.)
- Usage of existing IP- network and Server
- Containers or Virtualisation, Cloud-connection
- Graphical process flow design
- Integrations
- Low cost entry starting at 10 TEUR





Team new international projects

Manfred Reisner

- Industrialisation
- Automation
- Startup
- Marketing

Franz Nemes

- Scientist
- Startup
- Public funding
- Methods

Alfred Praus

- Internationalisation
- Banking
- Investors
- Supplier Mgmt

1MW agro photovoltaic APV

Build and operate a 1 MW Agri-PV at Biogas power plant

Cooperation with biogas power plant (500kW flat)

- The Agri-PV power plant serves a test field for fully automated farming of „power plants“

- The Photovoltaic and biogas power plant use the same grid access point.

- Smart energy production

Partner: Biogas power plant

@1 Microbial carbonization MC

Paris COP21 in 2015 Agreement in carbon neutrality by 2050

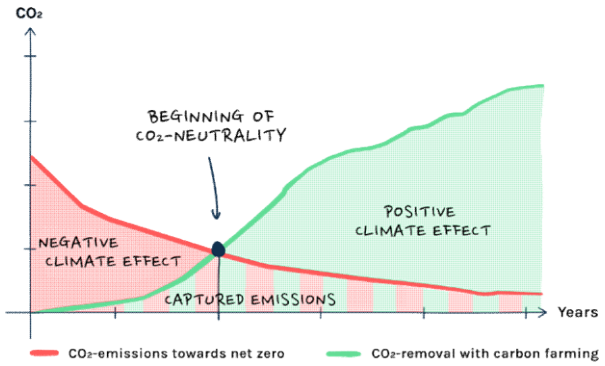
Residual biomass

ANOXIC

- CO2 certificates: Financial benefits
- Carbon sequestration: Lock carbon into stable humus
- Reduce waste: Convert organic materials into stable humus

UN GLOBAL COMPACT SDG AMBITION

MC method and testfield



Source: bluelife GmbH, climate lab Vienna

Microbial method to carbonate bio material

- Terra Preta by Indios 7000 years ago
- Natural process well documented in 1960-1970
  Universities and institutes, Prof. Walter Witte
- Several hundred well documented piles

Testfield 2024 (ACTARON GmbH) attached to biogas power plant (Gremel KG) with not usable bio material (Holz Schwarz GmbH)

Material: Wet grain straw and forest wood chips
Substrate: fermenter manure (origin pig manure)

Cooperation Vienna university and BOKU

MC test piles

Next phase – digital measurement (online)
> mobile containers

Final phase – Industrialisation and full automation, renewable energy

> Agri-Bots
> Agri-PV

Target: Fully automated cycle incl. digitalisation and renewable energy sources

Bio material per anno
10.000t green forest wood chips
2.000.000l fermenter manure and pig manure

approx 20.000t CO2 capture p.a.

Carbon Farming @Slovakia

High tech meets Low tech

Slovakia
- Authorities
- Big forrest / agro companies
  - 100.000t bio material p.a.
- Large farms (pig, chicken , turkey,…)

Austria
- Bank
- High Tech companies
- Consulting

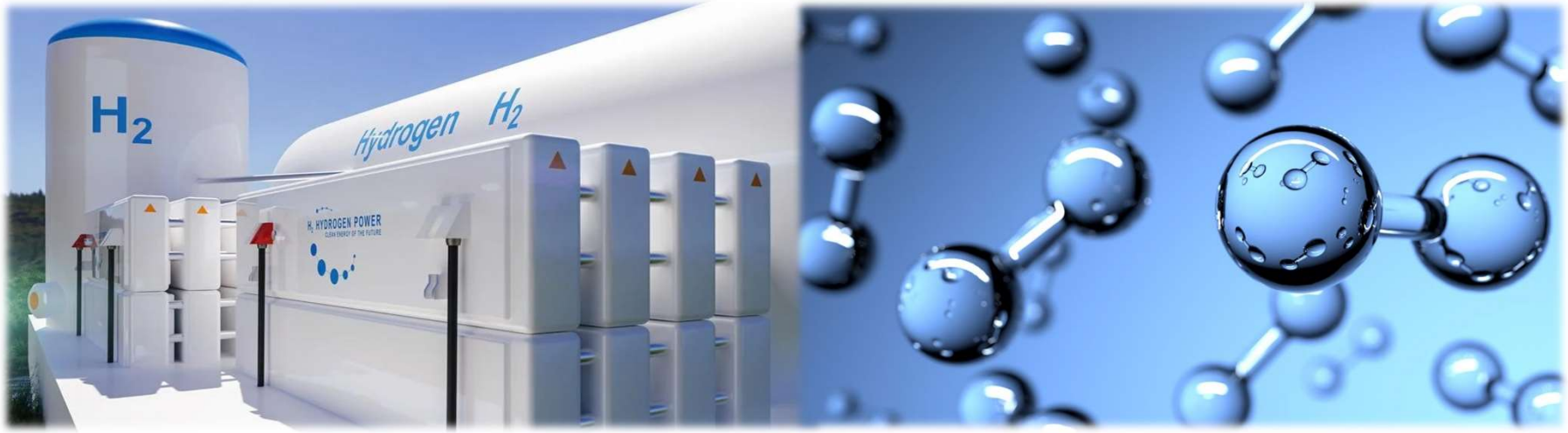
Fully automated cycle incl. digitalisation and renewable energy sources

Bio material per anno
100.000t straw
20.000.000l manure

approx 200.000t CO2 p.a. per project

System safety hydrogen power

- Safety concept fuel cells
- Certification functional safety pressure sensors for hydrogen tank
- Standards, hazard & risk analysis, safety concepts electrolysis stations



Academy, Seminars: Trainings and Workshops

ACADEMY

Functional Safety – Analysis – Software Safety – Semiconductors – Processes		
Seminars: Safety, Standards	Trainings and Workshops Analysis, System- FMEA, D-FMEA, FMEDA, FTA, DFA	Software Safety
IEC 61508 Ed2 / ISO26262 Ed2 / VDA 4.2 / AIAG /MIL-STD 882 / ECSS E40 / Q80 / ARP4761	Safetyprocess and Supporting Processes Quality, Configuration Management	

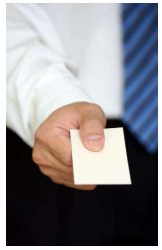
ACTARON trains and coaches in:

- Management of Functional Safety
- System Safety for Project Manager
- Software Safety
- Supporting processes

…and more special topics

Business Opportunities

- Energy Management Systems (industrial, smart homes)
- High Tech for Carbon Farming
- System Engineering for New Mobility and Innovative Energy projects
- Safety Engineering, System, Hardware and Software
  - Analysis: System FMEA, FMEDA, FMECA, FTA
  - Studies (stationary, motive and space)
  - E-Mobility, e-Powertrain, H2 stations and grid



- Studies and independant professional surveys for investors and public authorities
- Cooperation in public funded international projects (e.g. EU, multinational)
  - ACTARON = Enabler (Compliancy, Standards)

THANK YOU FOR YOUR ATTENTION!

ACTARON

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Introduction Manfred Reisner

Profession - 22 years industrial experience

2019	Founder and CEO of ACTARON GmbH, Academy, New mobility and system safety
2016	Business unit medical technology, Risk management ISO 14791, Software Safety
2012	Founder and CEO of AVQ GmbH, business units industry, automotive and aviation
2005-2012	Management consultant, Freelancer
2004-2005	European Space Agency, Technology Center (NL)
2003-2004	Trainer/ freelancer project management, groupware and process modelling
1997-2003	Information technology: T-Systems, Together GmbH, ITZ

Education

2019	IATF 16949 Training
2016	MedTec: Riskmanagement, IEC60601, IEC 62304 Software
2011	TUEV certificate AFSP Automotive Functional Safety Professional
1993-2000	Business administration, master's degree in business informatics and economics
1994-1998	Studied physics at the University of Vienna, intermediate diploma
1988- 1993	Higher technical college, electrical engineering, control and regulation technology, high school diploma with honours

Safety consulting systems and components

Automotive:	Lithium batteries e-mobility, e-drives, steering angle sensor, shift-by-wire, transmission and gearboxes, digital engine electronics, system quality engineer for premium-class vehicle, offboard diagnostics, battery systems
Industry:	Photovoltaic systems, shift-by-wire machines, marine gear, tracked vehicles, land and construction machinery
Aerospace:	Fly-by-wire passenger jet - Actuator Control Electronic, GALILEO sensors, EXOMars Locomotion Subsystem, SW Product Assurance study satellite avionics, safety manager Smart Wings research project

Qualification

Project mgmt:	PM-career T-Systems, PMP
Quality mgmt:	Specification inspections BMW, internal auditor debis system house, quality technology QII, certification no. QII / 92/0103 / Z, IATF 16949
Functional safety:	IEC61508 - Industry, ECSS - European Space, ED12 / DO-178B, ISO 26262, AFSP certified SGS TUEV ISO26262, AVQ - Safety Manager Trainer, risk management ISO 14791 medical technology, ACTARON - Software product assurance

Private pilot license, PPL JAR FCL