



avicenne
ENERGY

INFORMATION FOR GROWTH

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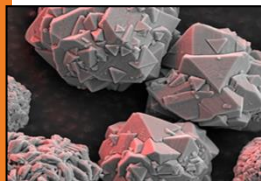
AVICENNE ENERGY

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January 2023

CONTACT

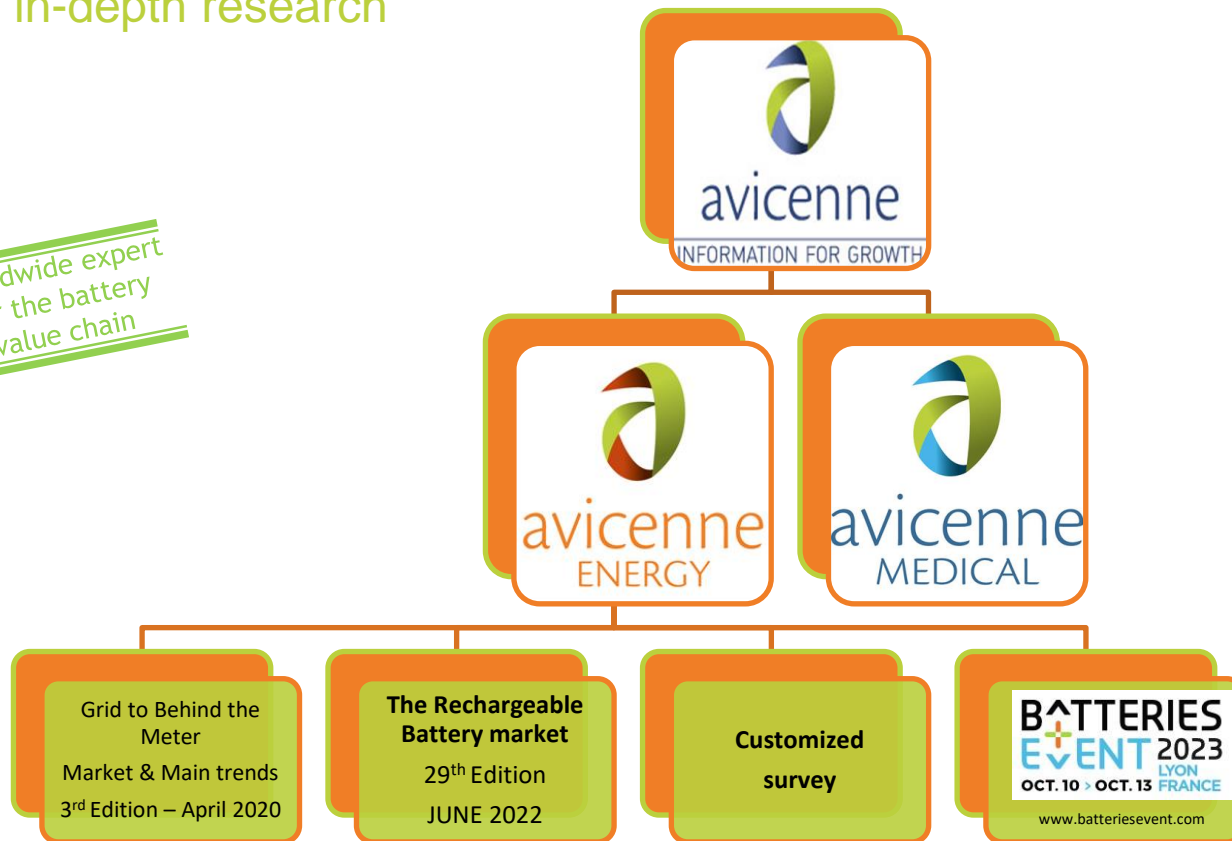
Christophe PILLOT
+ 33 1 44 55 19 90
c.pillot@avicenne.com



AVICENNE PROFILE

Information for Growth - Powering your company's market strategy
with in-depth research

Worldwide expert
for the battery
value chain




AVICENNE ENERGY TEAM



 Christophe Pillot, AVICENNE Energy Director

 Ali Madani, Senior Advisor


 Fabrice Renard, Senior Advisor

 Jean-Philippe Salvat, Analyst



 Mike Sanders, Senior Advisor, US manager

 Olivier Noel, Advisor

 Dave Sanders, Manager – Programs and Marketing



 Hengfeng Cui, Advisor



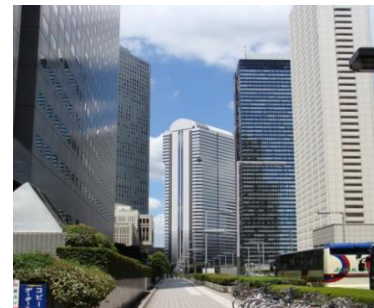
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c.pillot@avicenne.com

OUR BUSINESS STORY

- 1992** • AVICENNE Creation
- 1994** • AVICENNE advised French Industry Ministry on the European battery business
• AVICENNE open its office in JAPAN
- 1999** • « BATTERIES » congress 1st edition in Paris
- 2003** • AVICENNE work on the due diligence process for the sales of SAFT by ALCATEL
- 2008** • AVICENNE: expert witness in the NTT-Hydro Quebec conflict
- 2009** • AVICENNE presented its market forecasts to industrials in Asia: CIAPS in Beijing – China , Battery Japan in Tokyo
- 2010** • Avicenne developed partnership with BATTERY JAPAN
• 20th Edition of “The rechargeable battery market worldwide 2010-2020
- 2011** • AVICENNE Energy division is created
• 13th Edition of BATTERIES Congress
- 2012** • 21st Edition of “The rechargeable battery market worldwide 2011-2025
- 2014** • 16th Edition of BATTERIES Congress in NICE, France
• 1 month mission in China: Qinghai EV Rally, CIBF, 50 companies visited
- 2016** • 25th Edition of our Battery Market Survey – May 2016
• 18th Edition of BATTERIES Congress in NICE, France, Sept 2016
• European Community Project ALISE: Dissemination & Exploitation Work Package leader
- 2017** • 26th Edition of our Battery Market Survey – September 2017
• 19th Edition of BATTERIES Congress in NICE, France, Oct 2017
- 2022** • 29th Edition of our Battery Market Survey – June 2022
• 24th Edition of BATTERIES Congress in LYON, France, Oct 2022



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OUR METHODOLOGY

Track valuable
Information's



Strategic
Analysis



Presentation of
the results



Q&A with
customers



Customer
Evaluation

SUPPLY
SIDE

DEMAND
SIDE

INFORMATION COLLECTION

Primary Research	Secondary Research
<ul style="list-style-type: none"> Executive Interviews (> 20 000 contacts in the battery value chain) Vendor Briefings Product Demos and Tours 	<ul style="list-style-type: none"> Company News & Financials Technology & Product Specs Government Data Economic, Demographic Data
<ul style="list-style-type: none"> Consumer Surveys Business Leader Surveys 	<ul style="list-style-type: none"> Case Studies Reference Customers

MARKET & STRATEGIC ANALYSIS

Qualitative	Quantitative	Strategic
<ul style="list-style-type: none"> Business Models & Trends Technology Issues Policy & Regulatory Factors Competitive Landscape Profiles of Key Players 	<ul style="list-style-type: none"> Company News & Financials Technology & Product Specs Government Data Economic, Demographic Data 	<ul style="list-style-type: none"> SWOT Analysis Gap Analysis Business Plan Value Proposition Due Diligence Merger & Acquisition

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METHODOLOGY: EXTENSIVE FIELD RESEARCH TO RETRIEVE & CROSS CHECK INFORMATION

Top management
contact network
> 60 000 contacts

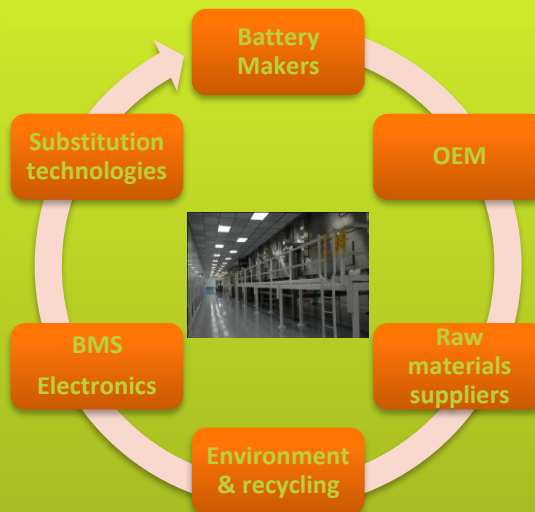
Conferences &
Exhibitions



In Depth analysis
Of applications



Cross Check
Analysis



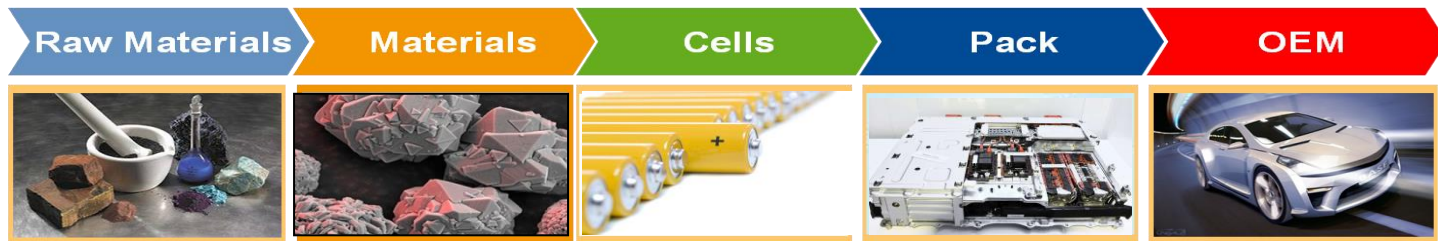
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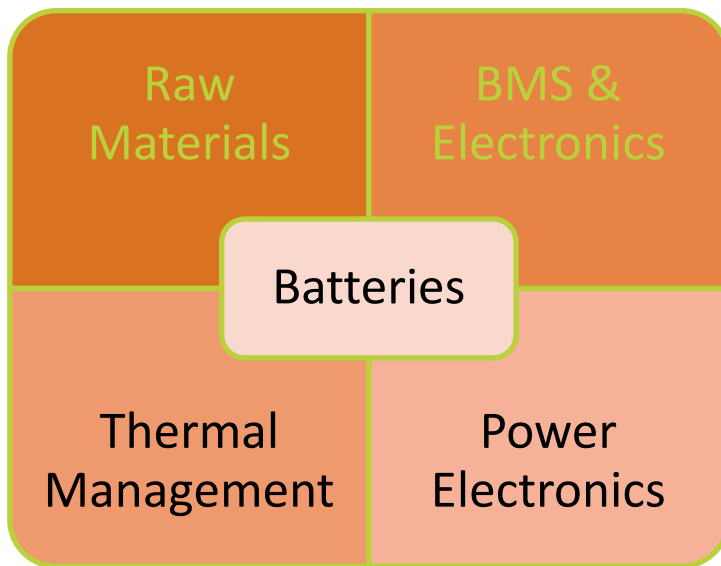
CONTACT

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CUSTOMIZED & MULTICLIENT SURVEY FOR ALL THE VALUE CHAIN



Source : Photo from BASF



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MORE THAN 400 REFERENCES (1/2)

Not Exhaustive

- 3M
- 6K
- A123
- AABC
- ABB
- ACC
- ACCELERON
- ACROPOLIS ADVISORS
- AHLSTROM
- AIR LIQUIDE
- AIR PRODUCT
- AL MADA
- ALABC
- ALBEMARLE
- ALCATEL
- ALCIMED
- ALLNEX
- ALKEEMIA
- AMAZON
- AMERICAN BATTERY SOLUTIONS
- ANDREWS KURTH
- ANDRITZ
- APPLE
- APPLIED MATERIALS
- ARC
- ARKEMA
- ARMOR
- AROS SECURITIES
- ASHLAND
- ASCEND ELEMENTS
- AVANTOR – VWR
- AVERY DENNISON
- AT KEARNEY
- ATL AMPEREX
- AUSTRIAN INSTITUTE OF TECHNOLOGY
- AXEON
- BABCOCK & WILCOX MEGTEC
- BAIN
- BANQUE DES TERRITOIRES
- BASF
- BAŞKENT ELEKTRİK DAĞITIM ANONİM ŞİRKETİ
- BASTEDO
- BATTERY ASSOCIATION OF KOREA
- BAYER
- BEBAT
- BELENOS
- BGL
- BGR
- BHP BILLITON
- BLACK & DECKER
- BLUE ENERGY
- BOLLORÉ
- BOOZ
- BOREALIS
- BOSCH
- BOSE
- BOSTON CONSULTING
- GROUP
- BOURNS
- BRAND LICENCING PARTNERS
- BRGM
- BRUCKNER
- BUHLER
- BYD
- CABOT
- CALL2RECYCLE
- CAMBRIDGE DISPLAY TECHNOLOGY
- CAMBRIDGE ENERTECH
- CAMX POWER
- CANADIAN SOLAR
- CAP X
- CARANDA
- CARBONE LORRAINE
- CARBONE SAVOIE
- CARESTREAM
- CARLYLE
- CATELLA
- CATERPILLAR INC.
- CDN COBALT
- CEA/LITEN
- CELANESE
- CELGARD
- CHEMETALL
- CHEMOURS
- CHEMISHE FABRIK BUDENHEIM
- CIAPS CHINA
- CIBA
- CLARIOS
- CNRS
- COBAT
- COGEMA
- COMET
- COMPASS LEXECON
- CONOCO PHILIPS
- CORFO
- COVESTRO
- CRU GROUP
- CSC CHALLENGE STRATEGY CHANGE
- DARTON
- COMMODITIES
- DCN
- DELTA
- DERA BGR
- DGA
- DIALOG SEMICONDUCTOR
- DOW CHEMICAL
- DOW CORNING
- DRAXLMAIER
- DSM
- DUNMORE
- DUPONT
- DURACELL
- DYSON
- E4TECH
- EATSMAN
- ECHION
- ECM GREENTECH
- EDF
- ELECTRAMET
- ELECTRO ENERGY
- ELEMENT ENERGY
- ELKEM
- ENEL
- ENER 1
- ENEDEL
- ENERGIZER
- ENERSYS
- ENEVATE
- ENOVIX
- ENPHASE
- ENTEGRIS
- EOLITE
- EPCOS OHG
- ERAMET
- ESI
- ETC AB
- ETOS CONSULTING
- EUCOBAT
- EURASIAN RESOURCES GROUP
- EUROBAT
- EUROPEAN COMMUNITY
- EVERON24
- EVERZINC
- EXXONMOBIL
- FACOM
- FAGOR
- FAIRSHILD SEMICONDUCTOR
- FALCON BRIDGE
- FAMEART
- FARADION
- FAURECIA
- FEASIBLE
- FERRARI
- FISH AND RICHARDSON
- FIST
- FLORIDIENNE DE CHIMIE
- FLUENCE ENERGY
- FMC
- FORGE NANO
- FORTU POWER CELL
- FRANCE TELECOM
- FRAUNHOFER IPA
- FRAUNHOFER ISI
- FREUDENBERG VLIESTOFFE SE
- FREYR
- FRIWO
- FULTON INNOVATION
- FURUKAWA BATTERY
- GAIA
- GBL
- GIL IMPORT BATTERIES LTD.
- GII
- GLATFELTER
- GM
- GOODPOINT FELLOWS
- GORE
- GRAPHIT KROPFMÜHL
- GS MELCOTEC
- HALOCARBON
- HALDOR TOPSOE
- HC STARCK
- HERAEUS QUARZGLAS
- HERITAGE GROUP
- HERON SCIENTIFIC
- HIGH POWER LITHIUM
- HILTI
- HITACHI
- HITACHI MAXELL
- HOLLINGSWORTH & VOSE CIE
- HONEYWELL
- HOPSCOTCH
- HUTCHINSON
- HUNTSMAN
- HYDRO ENERGI
- ICC NEXERGY
- ICL
- IER
- IGL EXPORT
- INFINEON TECHNOLOGIES
- INFORMA MARKETS
- INCO
- INNOV'X
- INNOVIA FILMS
- INTEK
- INTEL
- INTERNATIONAL COMPONENT
- INTERNATIONAL RECTIFIER



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CONTACT

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MORE THAN 400 REFERENCES (2/2)

Not Exhaustive

- INTERSIL
- INTERNATIONAL ZINC ASSOCIATION
- IMERYS
- ISRAEL CONSULTING
- ITRI
- ITS
- ITW
- JBC
- JETRO
- JOHNSON CONTROLS
- JOHNSON MATTHEY
- KIMBERLY CLARK
- KISTI GII
- KNOWLEDGE FOUNDATION
- KODAK
- KPMG
- KOSMO MAROC
- KRUGER
- KRISHNAN ENGINEERING
- KURA
- KYOCERA
- LATHAM & WATKINS
- LAZARD
- LECLANCHÉ
- LEGRAND
- LEK
- LG CHEMICAL
- L GAM
- LILIPUCIAN
- LION CELLS
- LITTLE FUSE
- LORD
- LUMINUS
- LYNAS CORP
- MAHLE GMBH
- MAGNA
- MANZ
- MATSUSHITA
- MEISIKE CHIMIE CONSULTING
- MAXWELL
- METROPOLE NORMANDIE
- MCKINSEY
- MICROPOROUS
- MICROSOFT
- MINDBRANCH
- MOLTECH
- MOLYCORP
- MOMENTIVE
- MOSAID TECHNOLOGIES
- MOTOROLA
- MPEG
- MTI MICRO FUEL CELLS
- MUNSTER UNIVERSITY
- NANOCOMP
- NANOCYL
- NAATBATT
- NAWA
- NCCP – RUSSIA
- NEC
- NECSA
- NEXT ENERGY
- NICKEL INSTITUTE
- NILAR AB
- NISSAN
- NITECH
- NKKPC
- NORILSK NICKEL
- NOUVEAU MONDE GRAPHITE
- NOVALED
- NOVEA ENERGIES
- NOVELIS
- NTK POWERDEX
- OLIVER WYMAN
- OMG INC
- ORANGE
- ORION ENGINEERED CARBONS
- OROCOBRE
- OSKR
- PALL
- PANASONIC
- PENOX GROUP
- PHILIPS
- PHOTON
- PK & WISE
- PLASTIC OMNIUM
- PLEXTRONICS
- POLARIS
- PORSCHE CONSULTING
- POSCO
- POWER GENIX
- POWER UP
- PPG
- PRAXAIR
- PRAYON
- PRISMARK
- PSA
- RAPHIT
- KROPF MUHL
- RAYOVAC
- RECHARGE
- RENAULT
- RHODIA
- RICARDO
- RIMAC
- RIO TINTO
- ROCKWOOD LITHIUM
- ROGERS CORPORATION
- ROLAND BERGER
- ROSKILL INFORMATION
- RSR CORP
- RUSNANO
- SABIC
- SAES GETTERS
- SAFT
- SAGENTIA
- SAINT GOBAIN
- SAKTI
- SAMSUNG SDI
- SANDVIK
- SANIK
- SCHNITZER STEEL
- SCHOTT
- SCHRODER VENTURE
- SCOTENT ENTREPRISE
- SEB
- SENSATA
- SEPCELL
- SEPION
- SFPZ
- SGL CARBON
- SHARK NINJA
- SHARP
- SHELL
- SHENZHEN HIGH POWER
- SILATRONIX
- SINTEF
- SKC
- SNF
- SOLID POWER
- SOLVAY
- SONY
- SOTERIA
- SQM
- STIBAT
- STORA ENSO
- STAX
- STORCK
- STRATEGY
- ANALYSIS
- STRAT
- ANTICIPATION
- STRYTEN ENERGY
- SUNLIGHT
- SVE – DASSAULT
- SVOLT
- SWM
- TALOS TECH
- TAYLOR WESSING
- TECHBLICK
- TECHNISCHE UNIVERSITÄT BRAUNSCHWEIG
- TECHNO CORE CO.
- TERRAROSSA CAPITAL
- THALES
- THREE HILLS CAPITAL PARTNERS
- TIAMAT
- TIGER GLOBAL
- TIMCAL
- TODA AMERICA
- TODA KOGYO
- TOKAI COBEX
- TOKYO ELECTRON LIMITED
- TORAY
- TOSHIBA
- TOTAL
- TOTAL WIRELESS SOLUTION
- TOYO
- TOYOTA
- TREOFAN
- TYCO
- UMICORE
- UNIFRAX
- UNIROSS
- URALLELEMENT
- US NAVY
- VARTA
- VAT
- VERKOR
- VDI/VDE
- VIBRANTZ TECHNOLOGIES
- VOLTA ENERGY TECHNOLOGIES
- VOLTRACK
- THALES WACKER CHEMIE AG
- WARBURGPINCUS
- WEGMANN AUTOMOTIVE
- WILDCAT
- WINSTON & STRAWN
- WR GRACE & CIE
- XGSCIENCES
- YASLAMEN
- ZEBRA
- ZPOWER
- ...

SPEAKER, CHAIRMAN OR WORKSHOP MODERATOR

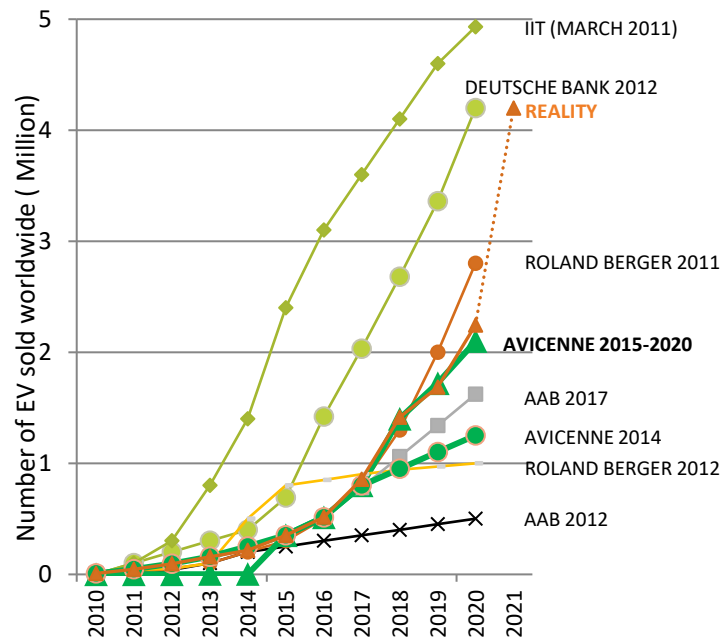
Tens of INTERNATIONAL CONFERENCES per year

- ✎ Extended Battery Life Working Group on battery technology development for mobile devices Meeting
Taiwan, Feb 2015, Tokyo Japan , Dec 2014 & Oct Feb 2016– 1h30 Presentation
"The battery market for mobile 2014-2025"
- ✎ BATTERIES 2021, FRANCE – (1999-2021)
Owner, chairman & speaker + 2h Tutorial
"The battery market 2020-2030"
- ✎ ILMB 2016, Chicago
"The Li-ion battery market 2015-2025"
- ✎ INTERNATIONAL Li-ion BATTERY SUMMIT – Dec 2015, 2016, 2019 Shenzhen, China
"The Li-ion battery raw materials market"
- ✎ AABC Europe, AABC US (2012 to 2021)
"The Lithium ion battery market and main trends"
- ✎ THE INTERNATIONAL BATTERY SEMINAR - FLORIDA
Fort Lauderdale, Florida – 2h tutorial
"HEV, PHEV & EV market ; Battery is the key" (From 2004 to 2022)
- ✎ EVER 2009, 2011, MONACO
"Challenges for EV market in Europe"
- ✎ EVS 2011, 2013, 2015
"Battery market for automotive industry"
- ✎ CIAPS (China Industrial Association of Power sources), BEIJING, Dec 2009, 2012, 2014, 2016, 2018
"Advanced battery market & raw materials worldwide"
- ✎ Advanced Battery for Vehicles, IQPC, Frankfurt, 2009, 2010, 2012
Chairman & speaker,
"The battery business 2009-2020"
- ✎ EET-2008 European Ele-Drive, MOTOR SHOW GENEVA,
International Advanced Mobility Forum – Geneva Motor Show
(Professor Gaston Maggetto Award: C. Pillot as the best rated paper & presentation by EET-2008 Scientific Reviewing Committee)
"The HEV & EV market trends & main challenges"
- ✎ And many more...



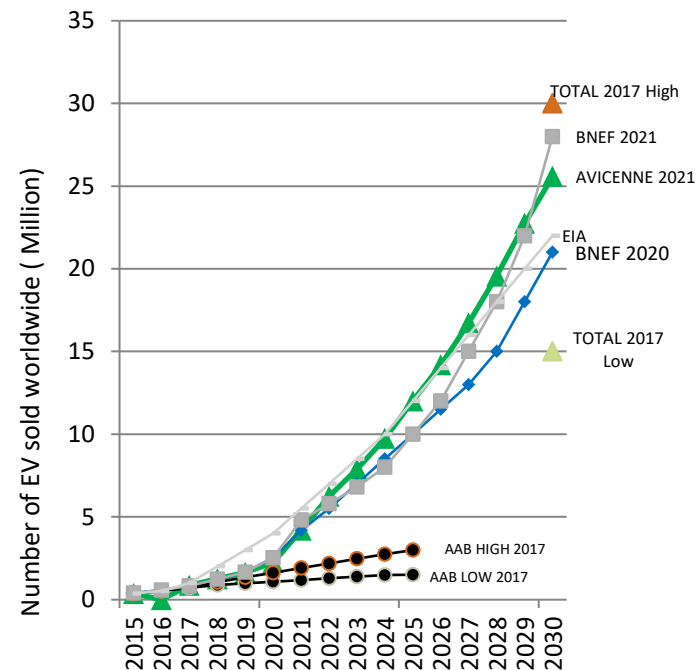
AVICENNE ENERGY: RENOWNED TO HAVE REALISTIC FORECASTS

EV sold, in million units, worldwide,
2010 - 2021



Source : International Battery Conference, Fort Lauderdale 2010-2019

EV sold, in million units, worldwide,
2015 - 2030



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January 2023

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BATTERIES 2022

www.batteriesevent.com



- 🕒 3 days congress in France (Lyon)
- 🕒 October 18th –21st, 2022
- 🕒 24th Edition (first edition in 1999)
- 🕒 +600 attendees
- 🕒 +60 Booths
Battery makers, raw materials suppliers, IC & BMS suppliers, tests, machining, coating,
- 🕒 +100 international speakers:
Researchers, industrial process, marketing, financials,

SUMMARY

- A small team dedicated on the battery industry for more than 25 years
- Working with large group worldwide: General Motors, Ferrari, Duracell, Energizer, BASF, Dupont, Panasonic, Samsung, LG, Sony, Bosch, Siemens, Toyota, Renault, Eramet, SQM, ...
- Synthetic presentation to management & CEO of major groups

*We will help and support
your growth*



THANK YOU



Christophe PILLOT

AVICENNE ENERGY

c.pillot@avicenne.com

Phone: +33 (0)1 44 55 19 90

Mobile: + 33 (0)6 88 82 79 49



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c.pillot@avicenne.com

AVICENNE Team – Project steering – Project Director

Christophe PILLOT, Partner – AVICENNE ENERGY Director, Battery and xEV expert



Christophe has built up considerable expertise in the area of battery market. He joined AVICENNE 30 years ago and Spend 3 years in Japan making analysis on the Electronic, Mobile & Japanese battery market. Christophe gained large experience in marketing, strategy analysis, technology and financial studies for the battery and power management fields. He developed the Battery market analysis for AVICENNE which counts more than 350 customers worldwide. Christophe published several annual surveys like “The rechargeable battery market and trends 2025”. He is also the founder & chairman of Batteries congress in France since 1999. He is now Director at AVICENNE ENERGY.

He has recently lead or participated in missions such as:

- 🔗 Lithium ion battery suppliers' profile
- 🔗 PSA-SAFT project expert analysis for ADEME
- 🔗 Detailed lithium ion cell cost analysis
- 🔗 Lithium ion battery cost analysis for different OEM (Nissan, Ferrari, GM)
- 🔗 Additive for Lithium ion Electrolyte
- 🔗 Anode market for Li-ion battery market & roadmap
- 🔗 Lithium carbonate & hydroxide market
- 🔗 xEV and E-bus battery market in China
- 🔗 Lithium ion battery Cathode and Anode market and value chain analysis
- 🔗 Lithium ion battery market beyond electronic devices & automotive: industrial batteries (UPS, Telecom, Back-up, Energy Storage systems...)
- 🔗 Analysis of the flow battery suppliers worldwide: large group & start-up analysis
- 🔗 Industrial battery market worldwide 2015-2025
- 🔗 TESLA, BOLLORE analysis: battery choice, battery pack, cost curve, partnership, business model
- 🔗 Lithium iron phosphate cathode market details and forecast – China Focus
- 🔗 Detail profile of anode, cathode, electrolyte and separator makers
- 🔗 Gel and solid electrolyte market and forecasts
- 🔗 Automotive battery market related opportunities
- 🔗 Opportunities in Lithium ion batteries for an US Speciality Chemical company
- 🔗 SWOT analysis of 20 separator makers
- 🔗 Li-ion pack makers market and business plan
- 🔗 Expert Witness in the NTT DoCoMo Vs. Hydro-Quebec IP dispute negotiations
- 🔗 Expert Witness in the UMICORE Vs. BASF IP dispute negotiations
- 🔗 Battery pack analysis – Opportunities to integrate power electronics & chargers in the pack

Christophe is Speaker, chairman or workshop moderator at +20 international conferences worldwide each year (BATTERIES France, IBS Florida, AABC US and Europe, CIBF China, LBIS Shenzhen, BATTERY JAPAN, INTERTEK KOREA,

Globally, he has been involved in more than 300 projects for 350+ customers in the Battery Value Chain.

Before joining AVICENNE, Christophe PILLOT held key position in FRANCE TELECOM innovation division.

Degree in Chemistry & MBA in Innovation Management from Paris IX Dauphine.

His mother tongue is French, and he speaks fluent English

AVICENNE Team – Project steering

Ali MADANI, Director- Battery, power electronics,
automotive expert



Ali MADANI is founder and Director of AVICENNE.

He will bring a strategic vision to the project. He will discuss the project with the team and ask strategic questions during the project to bring an “out of the box” vision and perspective.

He has recently led missions such as:

- Due diligence for a key battery player
- Lithium carbonate & hydroxide market
- Development of AVICENNE Automotive market studies
- Lithium ion battery market beyond electronic devices & automotive: industrial batteries (UPS, Telecom, Back-up, Energy Storage systems...),
- Participation to the recent AVICENNE study: The rechargeable battery market
- Li-ion pack makers market and business plan
- Battery pack analysis – Opportunities to integrate power electronics & chargers in the pack
- Battery market analysis for Automotive applications
- ...

Before creating AVICENNE, Ali MADANI held key position at DL See Consultants in Paris.

Degree from École Normale Supérieure de Cachan, MBA in Innovation Management from Paris IX Dauphine University. 30 years Experience in conducting, strategic and financial studies, technology watch projects for large corporations and small companies.

He is fluent in French and English.

AVICENNE Team – Senior Advisor Michael Sanders, Battery and Automotive expert



Mike is our US expert in Batteries and Materials. He is working at Sanders Group Enterprises, AVICENNE US Agent. He is responsible for proprietary projects supporting customers growth efforts, completing the interviews, writing the reports and mainly solicited for his knowledge on the US market.

He has recently participated in missions such as:

- 🔗 Battery Show, AABC and Solid State Market Presentations
- 🔗 Strategy Workshop for potential entrance into Lithium Ion Battery materials
- 🔗 Market connections and validation of opportunities in Lithium ion batteries for a US Speciality Chemical company
- 🔗 Strategy and Market advisor to all levels of the value chain: minerals, materials, cell makers and OEMs
- 🔗 Recycling, LIB Cathode, anode, separator and other analysis
- 🔗 Diligence programs for DOE and other acquisition or market entrance activities
- 🔗 High Si Loading Lithium Ion Battery roadmap
- 🔗 Anode market for Li-ion battery market & roadmap
- 🔗 Business development for new clients based on his network

Before forming the Sanders Group and becoming an agent for Avicenne, he had a long career with DuPont in multiple roles. Mike has significant energy storage materials value chain understanding with an emphasis on lithium ion batteries and systems with 10 years of market knowledge and relationships. Successful program leadership experience with significant business growth in ventures and existing businesses with a proven track record leading mergers and acquisition team to enter the lithium ion battery materials market. Most recent role with DuPont was the Global Marketing Director – Energy Storage Venture where he developed significant understanding and insights for the energy storage materials market, device manufacturing and systems while leading global marketing and customer interface efforts to establish programs to enter the \$20B energy storage materials market. Executed strategic and market planning for opportunity evaluation, research, and choices for entry into rapidly growing new market.

EDUCATION

Bachelor - Chemistry, University of Delaware, Newark, Delaware

AFFILIATIONS

Society of Automobile Engineers, Electrochemical Society

AVICENNE Team – Senior Advisor Fabrice Renard, Battery and Advanced materials expert



With more than 25 years of experience in business consultancy and management of chemical and advanced materials business in Belgium, Morocco and China, Fabrice gained strong experience on strategy, M&A, manufacturing, marketing, finance and innovation on high growth new technology business. He joined AVICENNE in 2020.

He is responsible for proprietary projects supporting customers growth efforts, completing the interviews, writing the reports and mainly solicited for his knowledge on economical and industrialization of existing and future materials alongside the battery value chain.

Prior AVICENNE, Fabrice was Chief Innovation Officer of the Prayon group. Over 10 years, he was in charge of the global R&D and Innovation strategy based on sustainable major trends and declined on nutrition, water, precision farming, rare elements recovery and energy. He led various up and downstream complex high-level international negotiations and partnerships including business or technology acquisitions. One of his core focus was the development of cathode materials. In this field, he earned a strong expertise on the battery value chain and served as COO of Belife, a joint venture with Umicore and as a Director of Prayon Pulead Technology, a Chinese-based LFP manufacturer.

Additionally, Fabrice holds different positions in Belgium and Morocco for Eklo, a consulting firm for emerging new business as managing director, for IDCampus, a creative lab as CEO and for Prayon as financial controller, marketing and business development manager, process and plant manager.

He holds a Master in Chemical Engineering, a Postgraduate Diploma in Business Administration, an Executive Degree in Tax Law and an Executive Master in Management.

His mother tongue is French and he is fluent in English.

AVICENNE Team – Consultant Hengfeng CUI, Battery expert



Hengfeng is our expert in the field of electrochemistry and APAC countries battery market. He is responsible for completing the interviews especially in China, South-Korea & Japan and writing the reports. He joined Avicenne 1 year ago.

He has recently participated in missions such as:

- 🔋 Lithium-ion battery Cathode market and value chain analysis
- 🔋 The Chinese rechargeable battery market
- 🔋 Cathode, anode and electrolyte provider company profiles in China
- 🔋 Recycling battery market trends in China
- 🔋 Hybrid Solid-State Battery recent development in China

Before joining AVICENNE, Hengfeng held International Business Development Manager position at Pulead Technology Industry, one of the major Cathode Active Material producer, for 5 Years.

Bachelor's degree in Chemical Engineering & Technology in Beijing, China.
Master of Engineering Science in Chemical & Bioprocess Engineering in Dublin, Ireland.

His mother tongue is Chinese, and he speaks fluent English.

AVICENNE Team – Consultant

Jean Philippe SALVAT, Battery expert



Jean Philippe is our expert in the field of electrochemistry. He is responsible for completing the interviews, writing the reports and mainly solicited for his technical input. He joined AVICENNE 30 years ago.

He has recently participated in missions such as:

- 🔧 Lithium carbonate & hydroxide market
- 🔧 xEV and E-bus battery market in China
- 🔧 Lithium ion battery Cathode market and value chain analysis
- 🔧 The rechargeable battery market
- 🔧 Lithium ion battery market beyond electronic devices & automotive: industrial batteries (UPS, Telecom, Back-up, Energy Storage systems...),
- 🔧 Opportunities in Lithium ion batteries for a US Speciality Chemical company
- 🔧 LIB Cathode, anode, electrolyte & separator cost analysis
- 🔧 SWOT analysis of 20 separator makers
- 🔧 Li-ion pack security needs: PPTC
- 🔧 Li-ion pack makers market and business plan
- 🔧 Battery pack analysis – Opportunities to integrate power electronics & chargers in the pack

Before joining AVICENNE, Jean Philippe held Analyst position in DL See Consultant (3 Years) and Research Center Pont à Mousson SAINT GOBAIN (2 Years)

Degree in Material Science.

His mother tongue is French, and he speaks fluent English.