## Vishay 3.0

Customer First.

Business Minded.

Growth Driven.

INVESTOR DAY

April 2, 2024



### Forward-Looking Statements

Comments in this presentation other than statements of historical fact may constitute forward-looking statements. Words such as "believe," "estimate," "will," "would," "expect," "anticipate," "plan," "project," "intend," "could," "should" or other similar words or expressions often identify forward-looking statements. Such statements are based on current expectations only, and are subject to certain risks, uncertainties and assumptions, many of which are beyond our control. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results, performance or achievements may vary materially from those anticipated, estimated or projected. Factors that could cause actual results to materially differ are described in our filings with the U.S. Securities and Exchange Commission, including our annual reports on Form 10-K and quarterly reports on Form 10-Q, specifically in the sections titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Risk Factors." The Company undertakes no obligation to update any forward-looking statements.

#### **NON-GAAP FINANCIAL MEASURES**

Management uses measures which are not recognized in accordance with U.S. generally accepted accounting principles ("GAAP") to evaluate its business and may refer to such measures in this presentation. These measures are considered "non-GAAP financial measures" under the U.S. Securities and Exchange Commission rules. These non-GAAP financial measures are intended to supplement our GAAP measures of performance and liquidity. These non-GAAP measures may include: adjusted net earnings, adjusted gross profit, adjusted gross margin, adjusted operating income, adjusted operating margin, adjusted earnings per share, free cash, EBITDA, adjusted EBITDA, EBITDA margin, return on invested capital, and capital intensity.

"Free cash" is cash generated from operations in excess of our capital expenditure needs and net of proceeds from the sale of assets. Management uses this measure to evaluate our ability to fund acquisitions, repay debt, and otherwise enhance stockholder value through stock buy-backs or dividends.

"EBITDA" is earnings before interest income and expense, provision for income taxes, depreciation expense, and amortization expense. Management believes that EBITDA provides additional information with respect to a company's performance and ability to meet its future capital expenditures and working capital requirements, particularly when evaluating acquisition targets.

"Adjusted EBITDA" is EBITDA adjusted for relevant reconciling items used to calculate adjusted net earnings (described above). Adjusted EBITDA is substantially similar to, but not identical to, a measure used in the calculation of financial ratios required for covenant compliance under our revolving credit facility.

"EBITDA Margin" is "adjusted EBITDA" divided by net revenues.

These measures do not have uniform definitions and accordingly, these measures, as calculated by Vishay, may not be comparable to similarly titled measures used by other companies. Such measures should not be viewed as alternatives to GAAP measures of performance or liquidity. However, Management believes such measures are meaningful to an evaluation of our business, as described above.





01



### Welcome to Vishay 3.0

JOEL SMEJKAL

President & Chief Executive Officer

## A New Vishay...

A Well Funded Start Up



**Customer** First



**Business** Minded



**Growth** Driven



### **Executive Team**



Joel Smejkal
President &
Chief Executive Officer



Jeff Webster
Executive Vice President
& Chief Operating Officer



Dave McConnell
Executive Vice President
Chief Financial Officer



Roy Shoshani
Executive Vice President
Chief Technical Officer



Mike O'Sullivan
Executive Vice President
Chief Administrative &
Legal Officer



Peter Henrici
Executive Vice President
Corporate Development

33 years of service

### Leadership roles in:

- Product Engineering
- Operations
- Marketing
- Sales
- P&L
- Business Development

24 years of service

### Leadership roles in:

- Corporate Quality
- Operations
- P&L
- IEHS
- Marketing

**32** years of service

### Leadership roles in:

- Audit
- Operational Finance
- Corporate Finance
- Treasury

### 20 years of service

### Leadership roles in:

- Product engineering
- IC Business Development
- Operations
- P&L
- M&A
- Business Development

### 12 years of service

### Leadership roles in:

- Legal
- Compliance
- ESG
- EHS
- IT

### 26 years of service

### Leadership roles in:

- Marcom
- Investor Relations
- Corporate Secretary
- Internal Communications



### **Leadership Team** Driving Change

**Operations** 

**Cash Flow** 

**Fulfill Orders** 

Vishay 3.0

**Customers & Markets** 

P&L

**Anticipate Customer Needs** 



### Agenda

Vishay 3.0

Welcome to Vishay 3.0	<b>Joel Smejkal</b> President & CEO
Manufacturing, Capacity Expansion Plans	Joel Smejkal President & CEO
Channel Management Strategy	Jeff Webster COO
Q&A / BREAK	
Silicon Carbide Strategy	<b>Roy Shoshani</b> CTO
Product and Technology Development Plans	Roy Shoshani CTO
Financial Targets & Capital Allocation	Dave McConnell CFO
Closing Remarks	Joel Smejkal President & CEO
Q & A	
LUNCH	



## **Broadest Line** of Discrete Semiconductors and Passive Components





### Trusted by...





### Our customers want more from Vishay



The "new" Vishay is an amazing company. Vishay has become a forward-looking technical solutions company and has risen to a new level. Vishay does not rely on the existing technology, the "new" Vishay focuses on developing innovative solutions to fit the changing technical challenges.

Beyond impressive technical innovation and new product introduction, Vishay's level of customer engagement and support is best in class.

Glenn Smith
President & CEO

### Honeywell

The partnership with Vishay Intertechnology Inc. has been important to Bosch and has demonstrated a good understanding of our needs and aspirations, aligning their expertise to support customers on strategic vision Their supportive approach and their commitment to innovation are highly valued and help us in our partnership. Vishay is characterized by a focus on strategic collaboration, which has been proven by the capacity expansion through the acquisition of Newport in 2023 or the construction of the new fab in Itzehoe and demonstrates Vishay's strong commitment to new business and customer focus

**E.S. Rafeek**Global Commodity Manager

### JABIL

It's been refreshing to truly partner with a company like Vishay who are laser focused and determined to ensure that there is a continued, smart, investment strategy that will allow customers to have peace of mind around continuity of supply. That laser focus on operational excellence as well as product technology continues to be a differentiator in many of the product categories that they support Jabil around the globe.

Frank McKay SVP, Chief Supply Chain & Procurement Officer



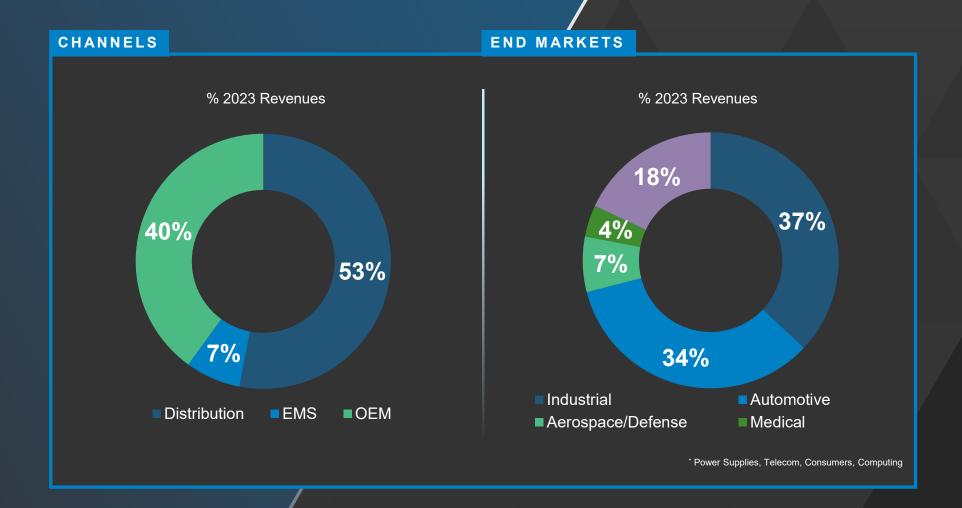
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#### **Udo Breitwiese**

VP Passive and Electromechanical Purchasing

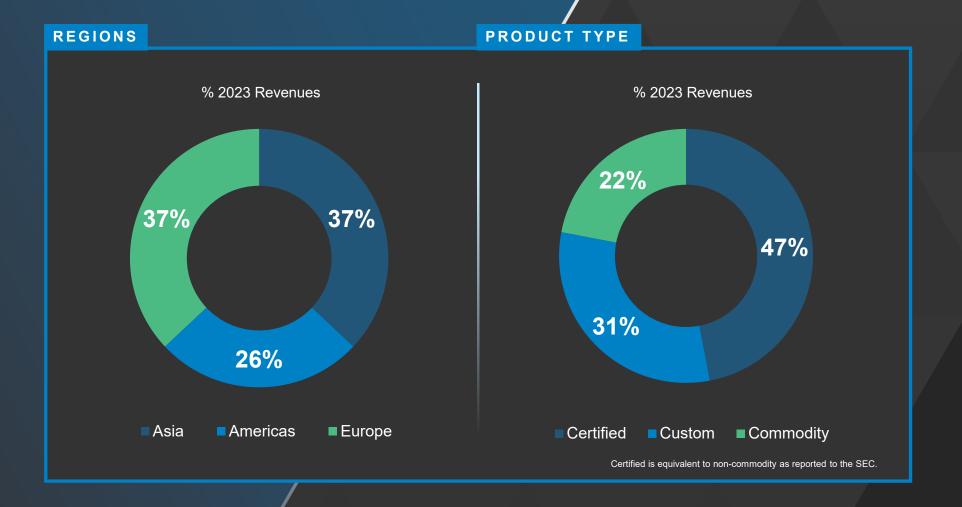


# Serving Multiple Channels and End Markets





# Serving Engineers' needs in all Regions





### e-mobility—Key 800V BEV Power Applications

#### HIGH VOLTAGE BATTERY 800V

**Diodes**: TVS, ESD, Schottky

Inductors for SMPS and as EMI Filters Capacitors: Safety caps, HV MLCC, charge balance capacitors (LV MLCC)

**LV MOSFETs** 

**Resistors**: NTC, Battery Shunts, Chip, Arrays, **Optical** communication interface

for BMS

solid state relay; optical MOSFET drivers

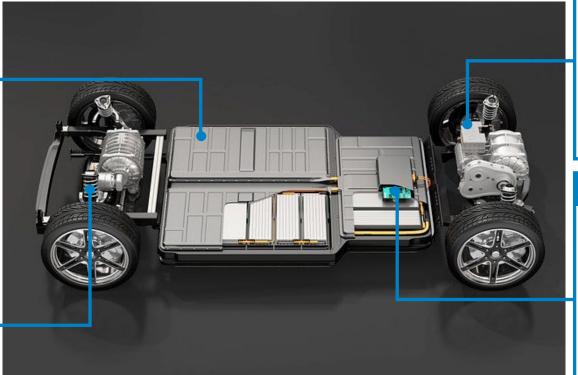
### ACTIVE ELECTRICAL SUSPENSION 800V

SIC MOSFETs BLDC drive 800V

**Diodes**: TVS, ESD **Inductors** as Filter

Capacitors: safety caps, HV MLCC, film capacitors as DC link Resistors: shunts, arrays, dividers

**Optical** Reflective sensor



#### MAIN INVERTER 800V

SiC Modules, SiC MOSFETs for

active discharge

**Inductors:** common mode custom

filter (HV)

Capacitors: safety caps, DC-Link,

snubbers

Resistors: NTC, gate resistors, active

discharge resistors, shunts

### ON BOARD CHARGER + DC/DC 800V

SiC MOSFETs, SiC Modules, Silicon

LV MOSFETs

Diodes: HV Snubber, Schottky for

auxiliary power

**TVS protection** for communication BUS/HV terminal and LV bootstrap

diodes

Capacitors: resonant film, Al polymer

hybrid, safety, DC link **Resistors**: PTCs, dividers



### **Sustainability**—Key Power Applications

### **TRANSMISSION**

Capacitors: High energy Resistors: High power

### WIND POWER

MOSFETs: IGBT modules, HV MOSFETs
Diodes: TVS, rectifiers
Capacitors: power
Resistors: Melf

### **ENERGY STORAGE**

### **MOSFETs**

**Diodes** & rectifiers **Capacitors:** ceramic

DC-link, safety

**Resistors:** Power Metal Strip®, NTC Thermistors



### **SOLAR ENERGY**

Micro inverter

**MOSFETs** 

Diodes: rectifiers, TVS Optocouplers, SSR Resistors: Melf, chips

Inductors

Inverter

Power modules

Capacitors: electrolytic, DC-Link filter, safety

### **CHARGING STATIONS**

MOSFETs: HV
Power modules

FRED & SiC

Capacity: Safety

& snubber

**Resistors:** Power

Metal Strip

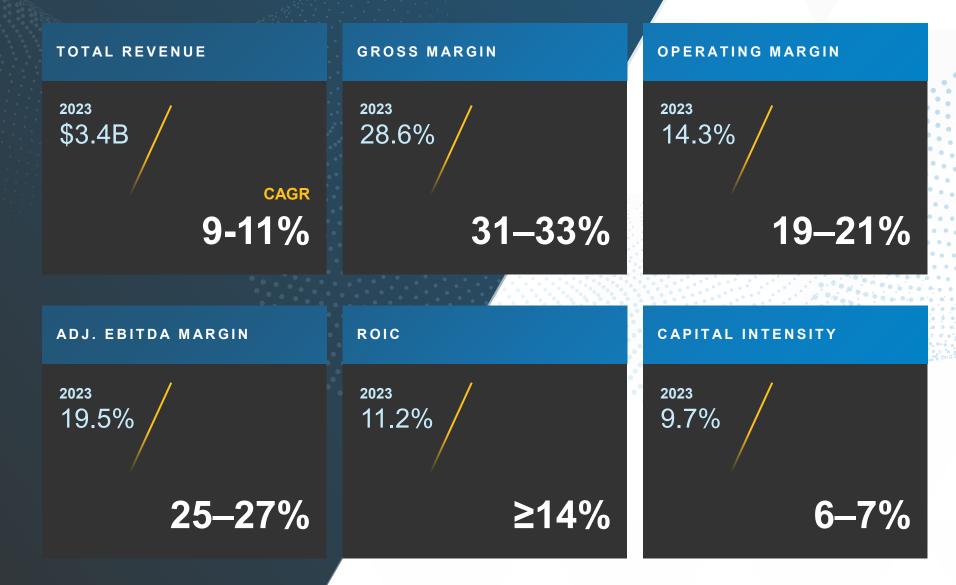


### **Strategic Growth Levers**

### **Serve Market Internal Capacity Enhanced Expansion Channel Management External Capacity** Broaden Innovation **Expansion** our Portfolio **Optimizing Global Vishay Solutions Manufacturing Footprint** Increased M&A **Technical Headcount**



### 2028 Financial Goals





### Coming Up



## Manufacturing and Capacity Expansion Plans



02



### Manufacturing, Capacity Expansion Plans

**JEFF WEBSTER** 

**Chief Operating Officer** 

## Scaling and Enhancing Operations

### WHO WE WERE

Allocation/ Capacity constrained Manufacturing focused

Single product line facilities

Focused on internal production

Maximize Utilization

### WHERE WE'RE GOING



Capacity Ready



**Customer and** service driven



Optimized global operations— regionally diverse campuses



Balancing between internal and external production



Maximize profitability



## Investing in Capacity Readiness



Investing \$2.6 billion, 2023–2028



Investing 70% of CapEx in capacity expansion



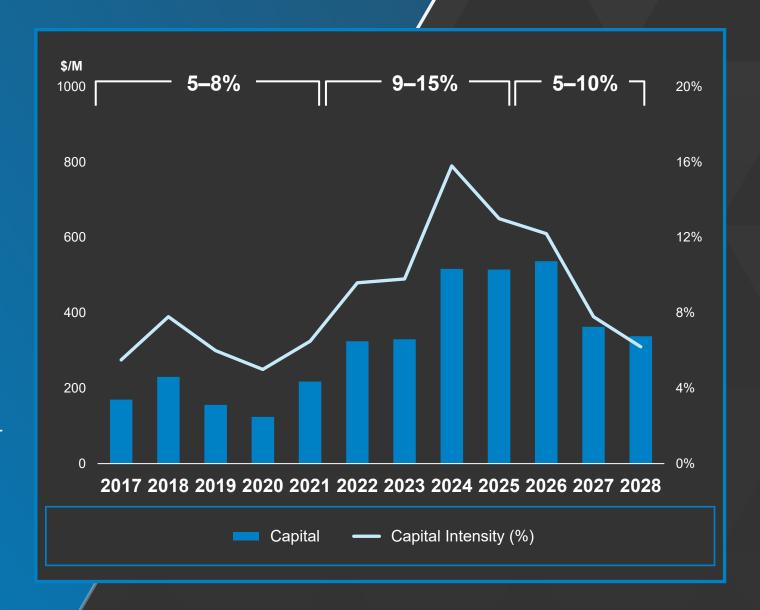
Focused on growth product lines



**GOAL** 

**80% utilization** on growth product lines by 2028

**Competitive lead times during upturns** 







### Technology Capacity Expansion

BUILDING

**PRODUCTS** 

**3,650** m<sup>2</sup> • Fab

MOSFETS, SiC, GaN opto & thin film resistors

Q4 '24

**PRODUCTION START** 

Commercial

Automotive Q1 '25





## Fully Automated 12" Silicon Expansion

BUILDING

PRODUCTS

**4000** m<sup>2</sup> • Fab

MOSFETs, IC's

**PRODUCTION START** 

Commercial

Q2'26

**Automotive** 

Q2'26





### Passive Capacity Expansion

BUILDING

PRODUCTS

**18,000** m<sup>2</sup> • Assembly

Inductors, resistors

**PRODUCTION START** 

**Commercial** 

Q1 '24

**Automotive** 

Q2 '24





### Resistors Capacity Expansion

BUILDING

PRODUCTS

**10,800** m<sup>2</sup> • Assembly

Resistors

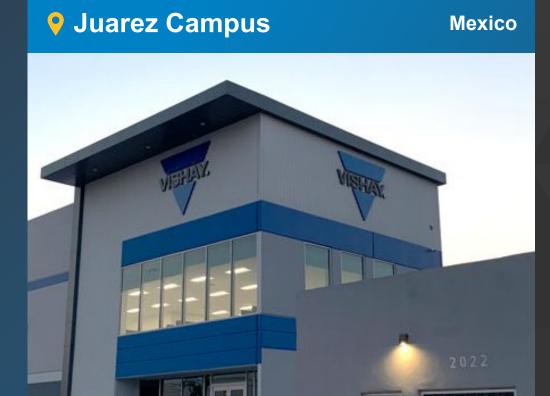
**PRODUCTION START** 

**Commercial** 

Q1 '24

**Automotive** 

Q2 '24





## External Capacity Expansion

PASSIVES

4%

2023

SEMICONDUCTORS

WAFER FAB

40%

2023

ASSEMBLY

24%

2023

10%

### 2028 Revenue

Primarily resistors, through combination of buy-resale and subcontracting commodity product lines 40%

### **2028 Production**

Add capacity with Newport and Itzehoe

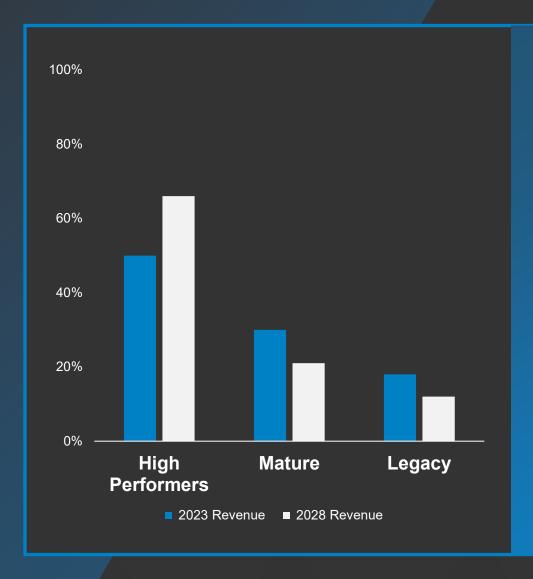
45%

### **2028 Production**

Move more product for all business lines



## Maximizing **Profitability**



### **Product Category**

### **High Performers**

- ► Technically leading, used in growth markets
- ► Internal capacity expansion: >75%

### Mature

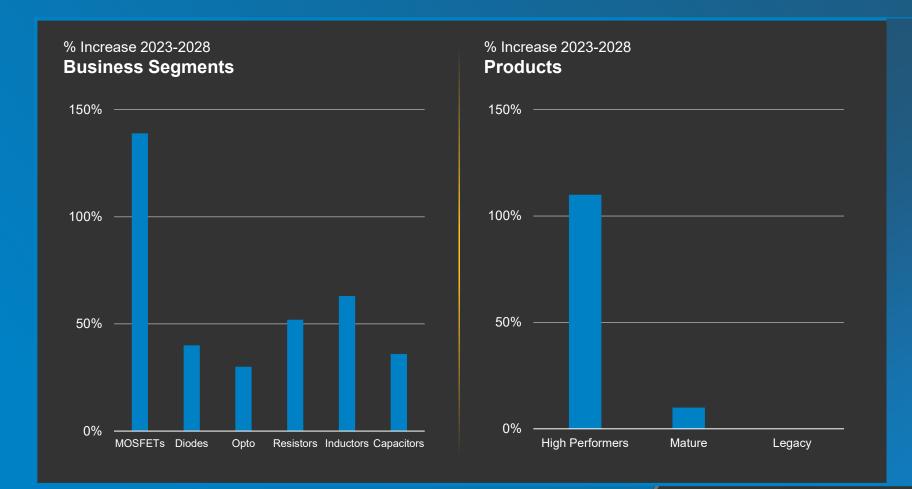
- ► Leading products with limited growth potential.
- ► Cost Reduction/Price Management

### Legacy

- ► Older products with low growth potential.
- ▶ Price Management, Divest, Terminate



### **Increasing Capacity**



### **Utilization**

**High Performers** 

**90%-100% 70%-80%** 2022 2028

Mature

**90%-100% 70%-80%** 2022 2028

Legacy

**70%-80% 50%-60%** 2022 2028



# Customer First. Business Minded.

Growth

Driven.



Capacity Ready



**Customer and** service driven



Optimized global operations— regionally diverse campuses



Balancing between internal and external production



Maximize profitability



### Coming Up



## **Channel Management Strategy**



03



## Channel Management Strategy

JOEL SMEJKAL

President & Chief Executive Officer

### **Enhancing Channel Management and Vishay's Profitable**

## The Customers want more from Vishay



### OEM



Assurance of capacity to scale



Provide greater technical support through FAEs



Engage customers' in-house design engineers

### **@**ntinental**⅓**

Key supplier and technology leader for essential components (ex. MOSFETs, metal composite inductors, thin film resistors). Evolving now in an unpredictable and transforming environment, we appreciate the signals placed by Joel with regards to a strong continued commitment to our business, your willingness to grow/adapt business with us more and faster.

### **Beatrice Gunther**

Director Purchasing Electronics Passives

### BAE SYSTEMS

Vishay's renewed focus and investments in capacity strengthen the strategic partnership with BAE

Systems and is embedded in our supply chain. It is vital that critical electronics manufacturers such as Vishay lean forward in expanding capacity in order to meet the growing demands of aerospace and defense.

### **Clark Dumont**

Sr. Director Global Procurement

### SEAGATE

Vishay is at the forefront of MOSFET technology and the first resource I turn to when selecting power stage components for new voltage regulator designs. Vishay also supplies high quality inductors and is very flexible in terms of creating custom solutions as new needs arise.

**Brian Boling** 

Design Engineer

### Mary Serena

Program Manager



Vishay's innovation has been instrumental in assisting Northrop Grumman to find new substrate sources to meet warfighter needs.



### **EMS**



Assurance of capacity to scale



Placed on Bill of Materials



Engage customers' in-house design engineers



Regional manufacturing with competitive lead times



As Flex Procurement Leader, I am delighted to acknowledge the strengthened partnership between Vishay and Flex over the past couple of years. Throughout the challenges and successes in our industry, Vishay has shown great responsiveness to our needs, adapting its business practices to provide the flexibility we require. Consequently, and always subject to commercial competitiveness, our respective teams are exploring opportunities to enhance collaboration through early engineering and sourcing engagement with your extensive product portfolio. I am eager to witness our continued growth together.

Vincent Cellard

**VP Procurement** 



Vishay is a valued partner that has demonstrated significant improvements in leadership and customer service since their organizational realignment in January 2023. The team created under Joel's guidance is delivering on their commitment to the customer relationship.

Jamey Mann VP Global Supply Chain



### Distribution



Best-in-class new product introduction to catalogue houses



Expand our SKU counts



Assure continuous supply of product



Regional manufacturing with competitive lead times

### **AVNET**

Today's customers require solutions to support efficient designs along with the manufacturing capacity to speed their time to market. Vishay's comprehensive offering of both semiconductor and passive technologies addresses that need. But as important as an expansive portfolio and manufacturing prowess are, they're not the only elements required for success. There also has to be a bias toward customer focus and solution provision. Vishay's change in this regard has been remarkable. They are rapidly migrating away from a collection of disparate brands to a unified enterprise providing technology solutions that create extraordinary value for our mutual customers under the Vishay umbrella. As a proud Vishay partner for 60 years, we see their tagline as a perfect representation of today's Vishay; Vishay truly does build the "DNA of tech."

Phil Gallagher CEO

### DigiKey



We've had a highly valued 19 year relationship with Vishay. The new team has injected a noticeable sense of energy and purpose towards growth. We feel the increased presence of a 'Think Customer First' approach with the channel. Vishay's ability to service the market with a broad array products is unrivaled. We are seeing a recognition that to succeed in the cyclical nature of this industry, leaders can not be conservative. One must take bold calculated actions without being reckless. We are seeing and experiencing this spirit with the new team.

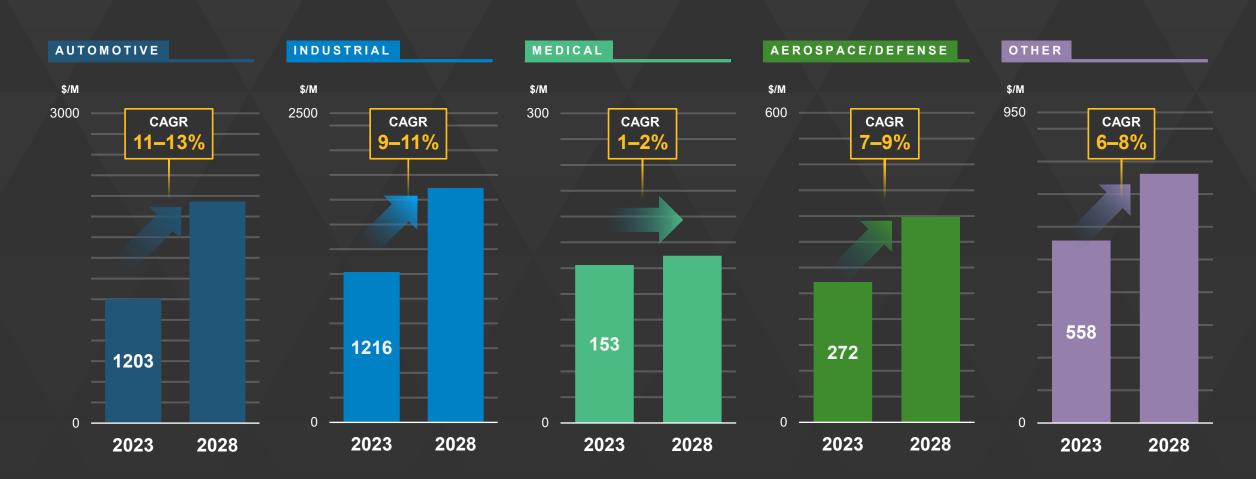
**Dave Doherty** CEO

Vishay under the leadership of Joel Smejkal has returned to a strategy of developing new technologies and investing in production capacities to create growth versus reacting to market growth. This creates an opportunity for Distribution to offer wider technologies and additional product availability with shorter lead-times thereby increasing Vishay's market share.

Mike Morton CEO

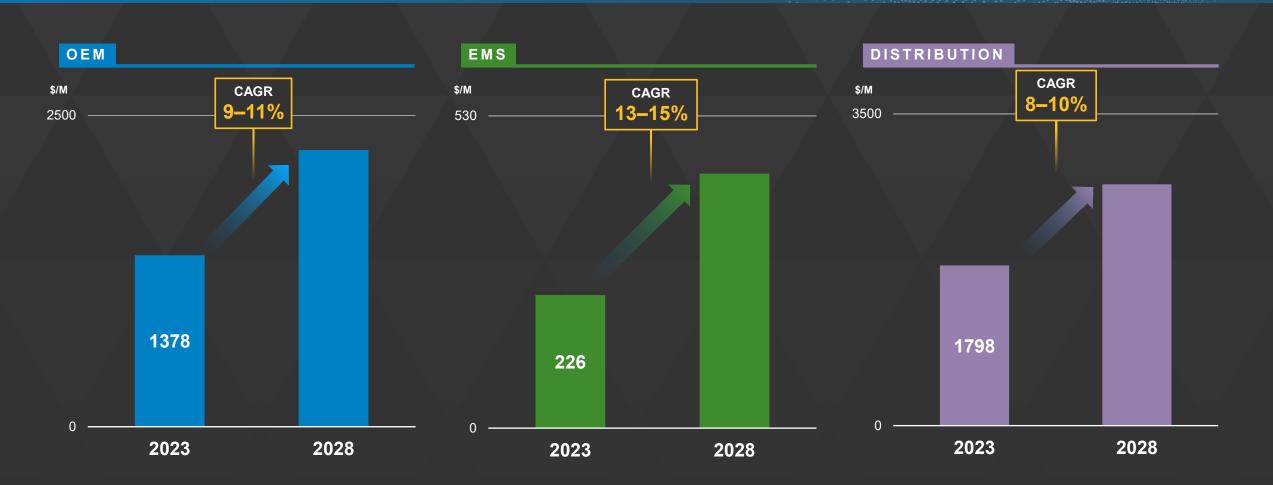


### Growth in each end market



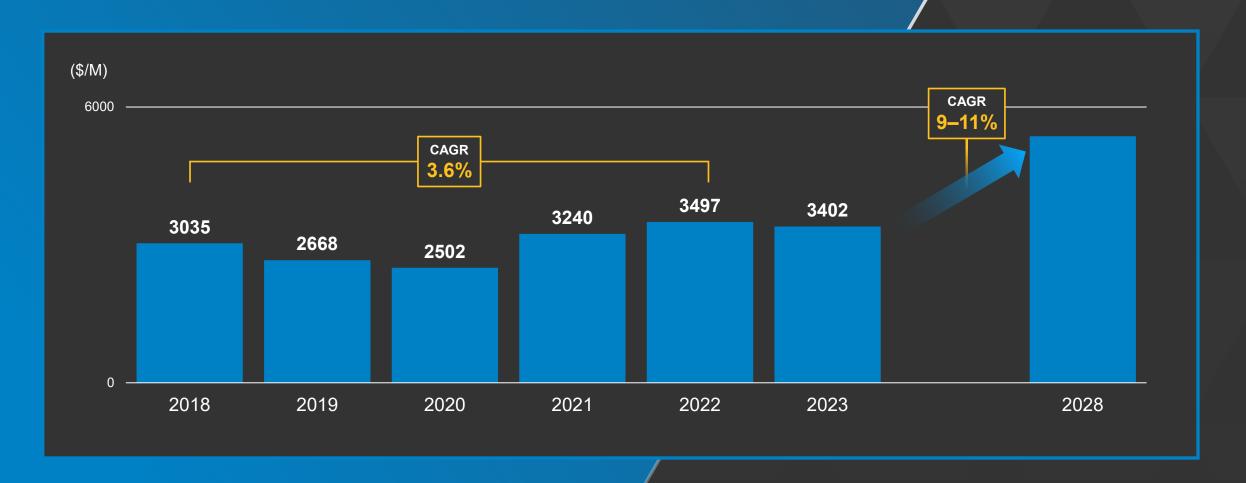


### Growth in each channel





## **Accelerating Revenue Growth**







Joel Smejkal
President &
Chief Executive Officer



Jeff Webster
Executive Vice President &
Chief Operating Officer

Q&A



## Break



## Coming Up



## Silicon Carbide Strategy



VISHAY

## Silicon Carbide Strategy

**ROY SHOSHANI** 

**Chief Technical Officer** 

## **Driving Innovation**



**Technical Customer Engagement Solutions focus** 



Enhanced R&D execution



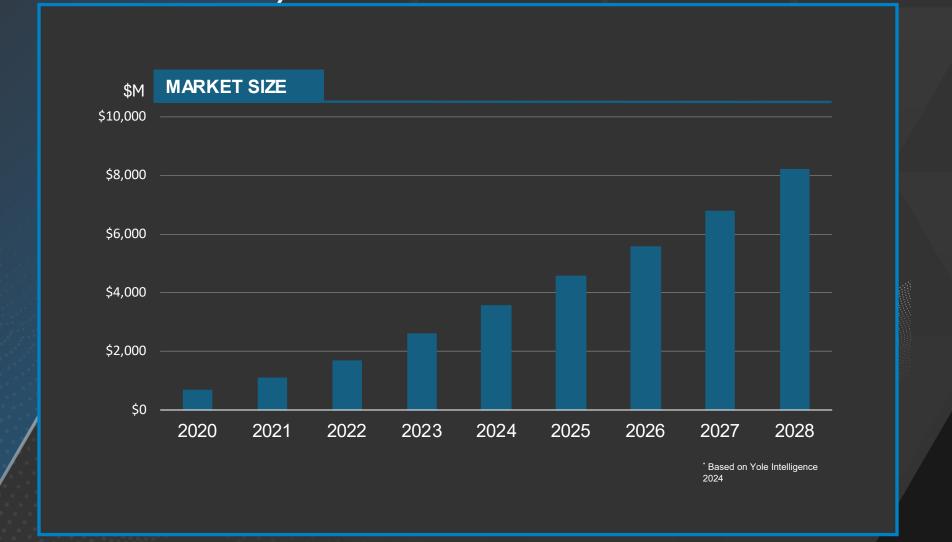
Universities & R&D institutes collaboration



**Increased investment** 



# Power SiC device Market





## SiC Market & Applications

E-MOBILITY

#### AUTOMOTIVE

**Onboard charger** 

**Main inverter** 

**DC/DC** converter

**Heat pumps** 

SUSTAINABILITY

#### INDUSTRIAL

Solar

**Motor drives** 

**Heat pumps** 

**EV** charging

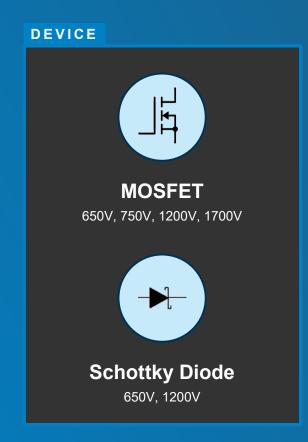
**Energy storage systems** 

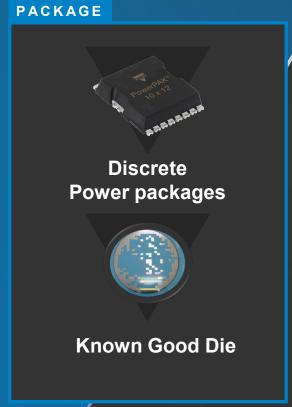
**Datacenters power supply** 





# Innovating SiC Strategy









# Laying the foundation of **SiC**

## MaxPower Acquisition



Highly skilled & experienced team

**Extensive IP** 

Proven MOSFET technologies for both Planar & Trench

2026
MaxSiC4

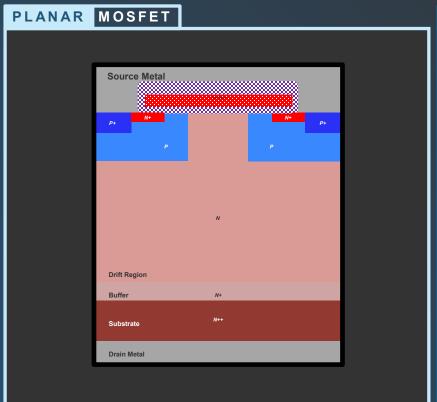
2025
MaxSiC3

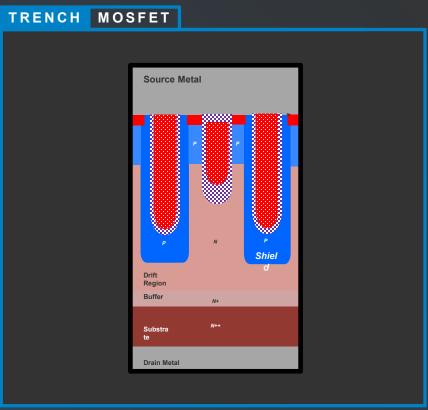
2023
MaxSiC2

2018
MaxSiC1



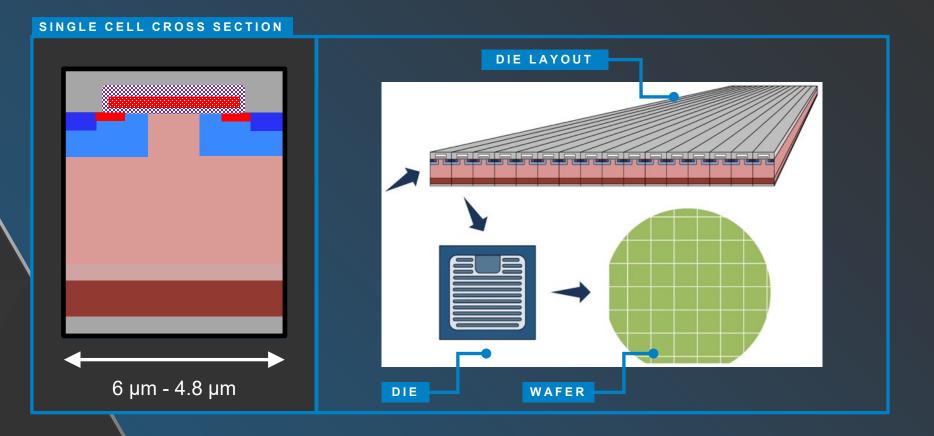
# Trench vs. Planar MOSFET Structure





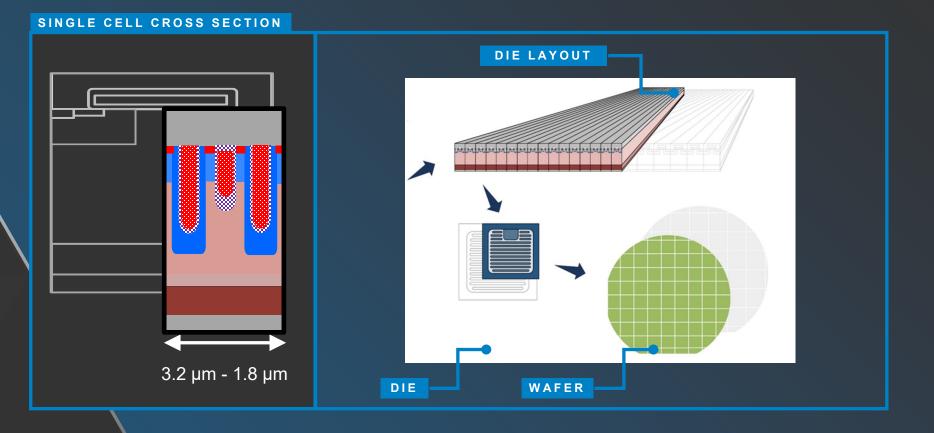


Planar SiC
MOSFET
Device Structure
& Design





# Trench SiC MOSFET Device Structure & Design

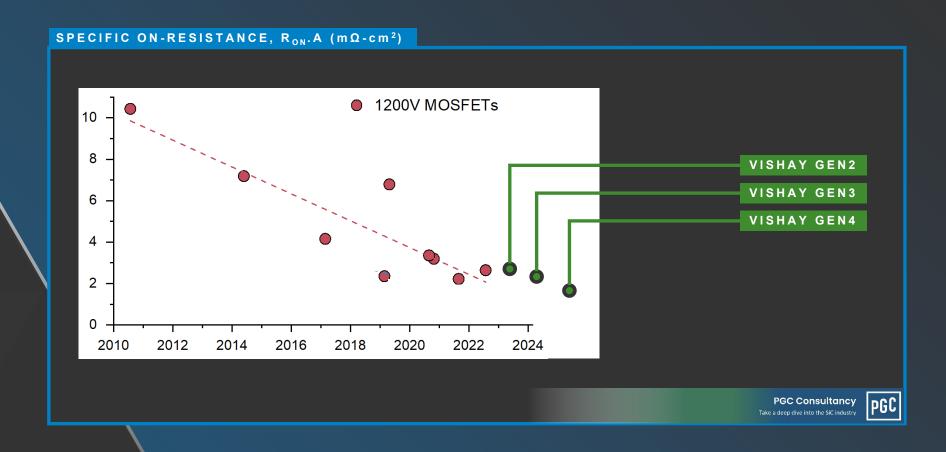




SiC MOSFET

Ron Area

Development



## Dual Shielded Trench MOSFET Advantages



#### **Enhanced reliability**

Rugged design with maximum efficiency



#### Improved performance

Scalable for future roadmap



#### **Simplified process**

Compared to other trench competitors



## SiC Operations Strategy

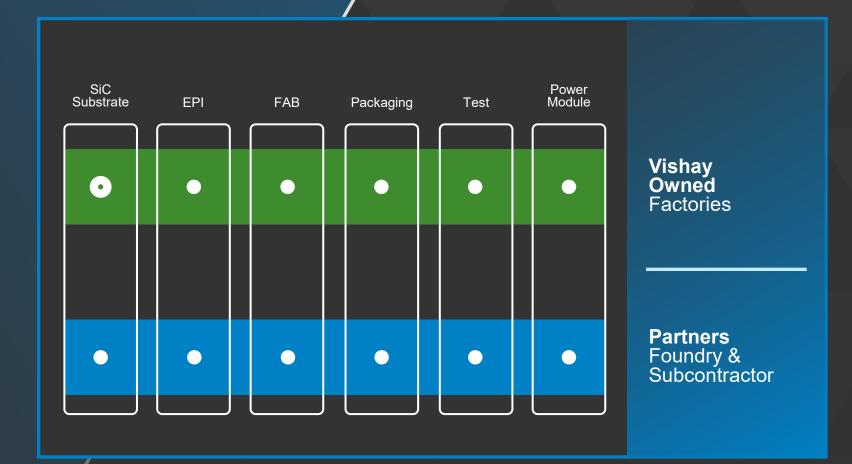


Hybrid model

Combined Vishay operations and foundry partners



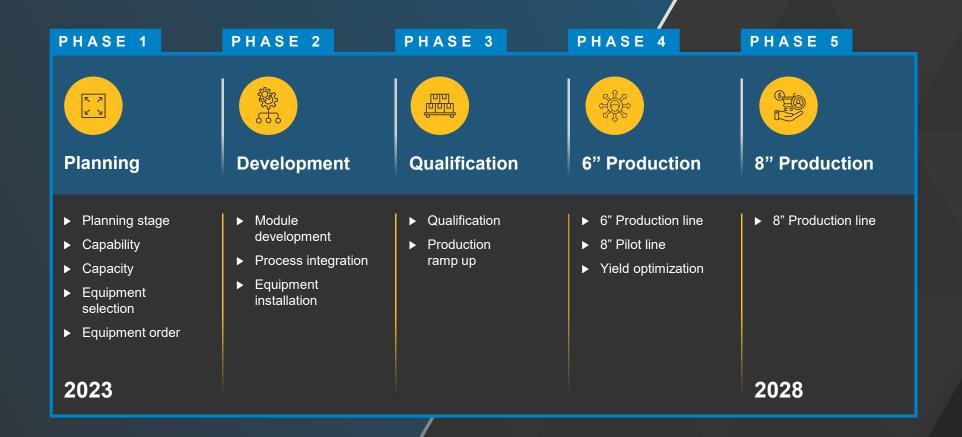
**Diversified supply chain** Supporting customer resilience





### SiC Production Plan

Newport Wafer Fab





## SiC Operation Plan

Vishay
Owned factories

FAB EPI

#### Newport, Wales, UK

- ➤ Clean room space enable capacity up to 30k 8-inch wafers per month
- ➤ 3 phase capacity expansion options to enable over 100k wafers per month



► Up to 50,000 ft² of available room space within the campus



#### SUBSTRATE

- ► Engaged with 4 suppliers for Long-Term Agreement supply
- Ongoing discussion regarding technology licensing options

#### MODULE

#### Borgaro, Italy

► Transfer mold line





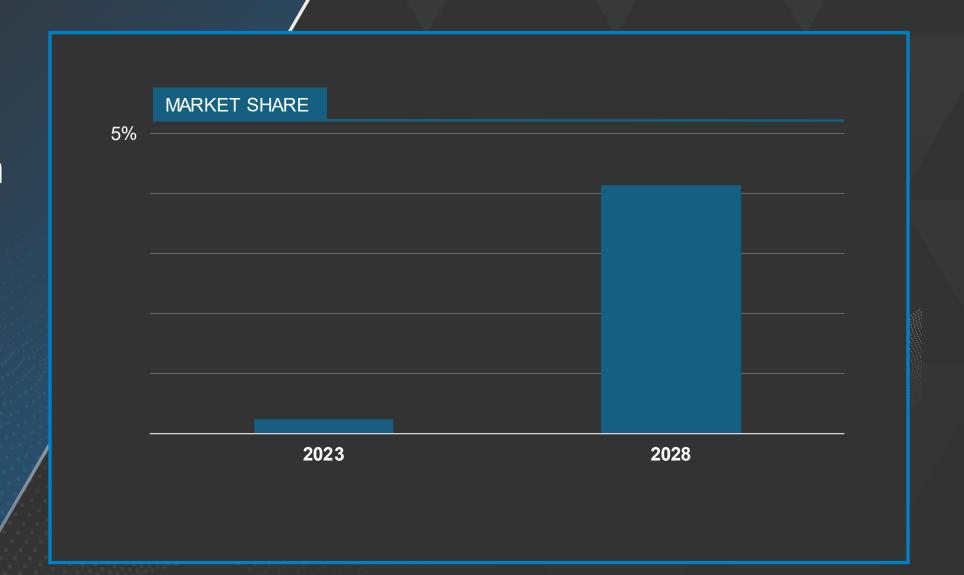
# Highly experienced SiC support team

Reliability	Device
Leading professor with over 30 years experience in SiC device & reliability	Leading professor with over 20 years experience in SiC device
EPI	Substrate

Vishay Strategic UK University Partners



## SiC Growth Plan





## Coming Up



## Product and Technology Development Plans



05



## **Product and Technology Development Plans**

**ROY SHOSHANI** 

**Chief Technical Officer** 

# Driving Innovation



Technical Customer
Engagement Solutions focus



Enhanced R&D execution



Universities & R&D institutes collaboration



Increased investment

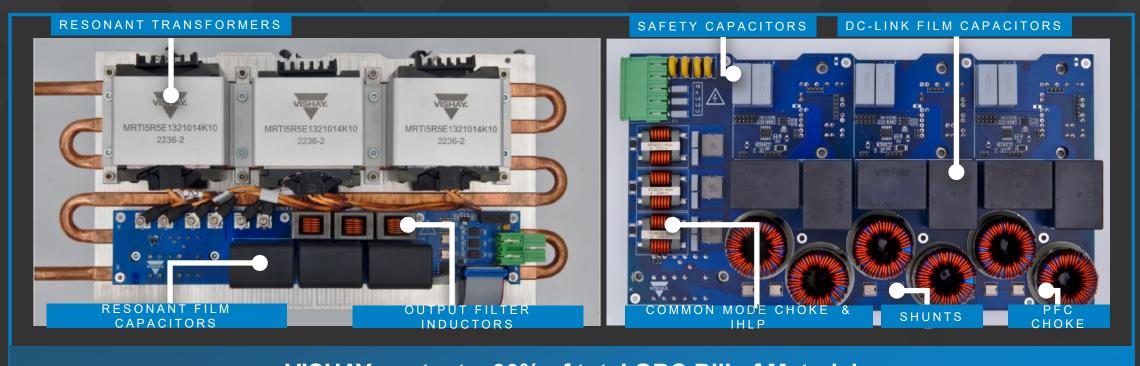


## Innovation



## Reference Designs

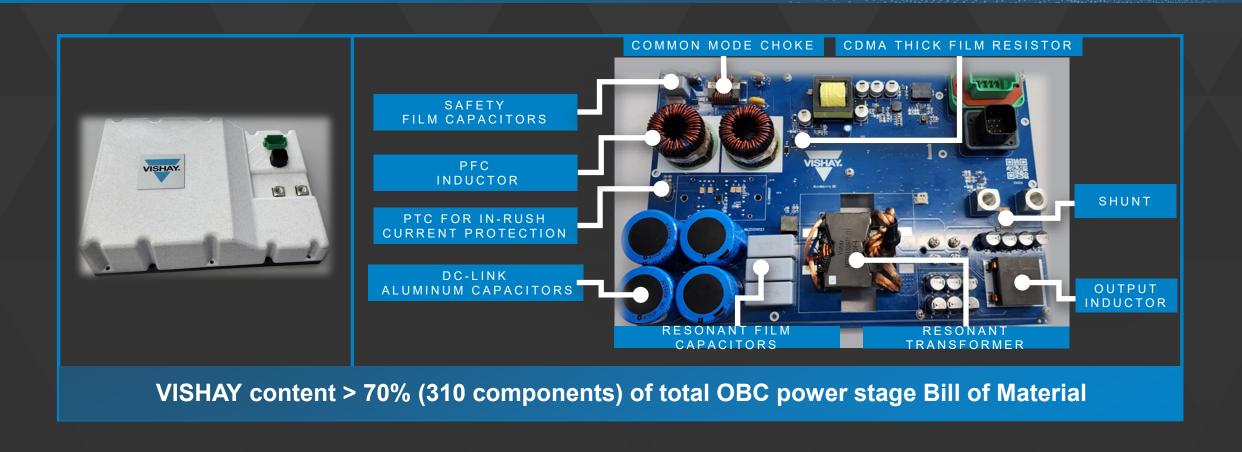
### 11kW On Board Charger - Reference Design



**VISHAY** content > 90% of total OBC Bill of Material



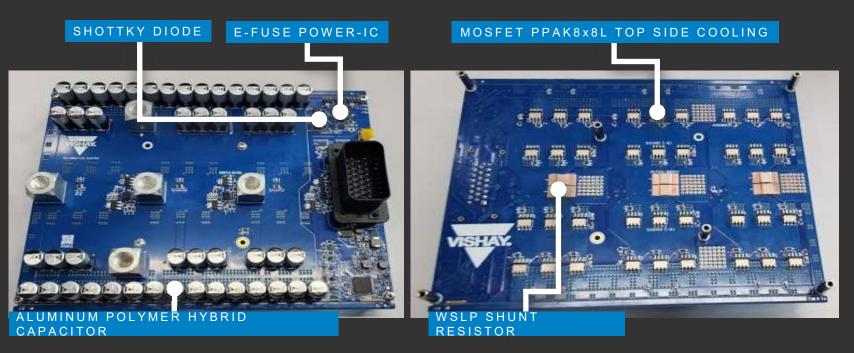
### 3.2kW On Board Charger for low speed 48V EV - Reference Design





## **25kW Traction Inverter** for micromobility, low speed 48V EV - Reference Design

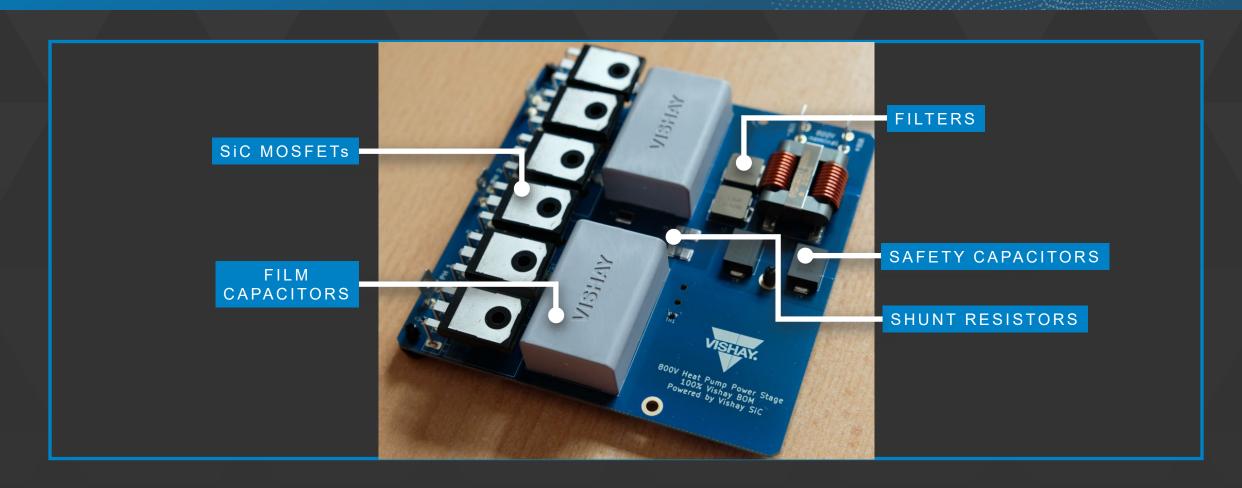




VISHAY content > 60% (390 components) of total Bill of Material



### 800V Heat Pump power stage inverter - Reference Design

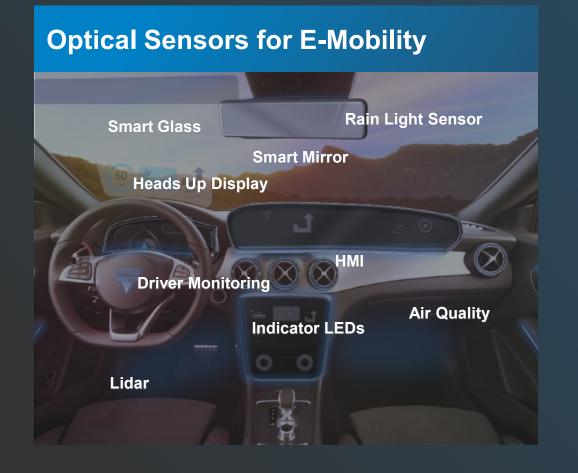




## Innovation



## **Focus Applications**



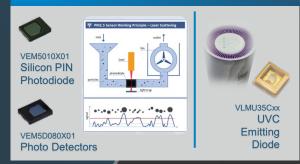




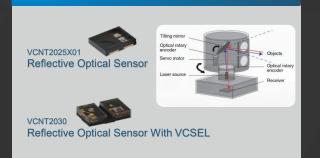
#### **Driver Monitoring**



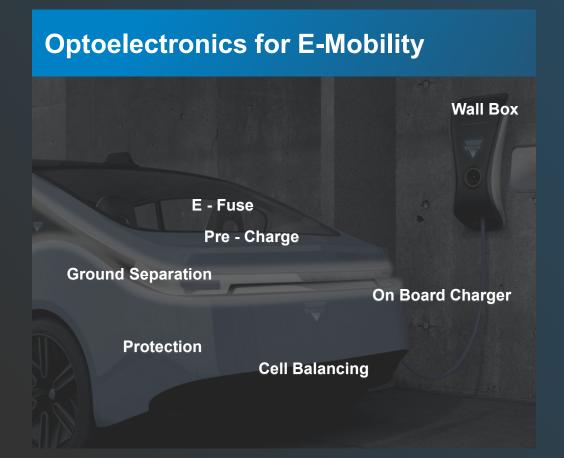
#### **Air Quality**

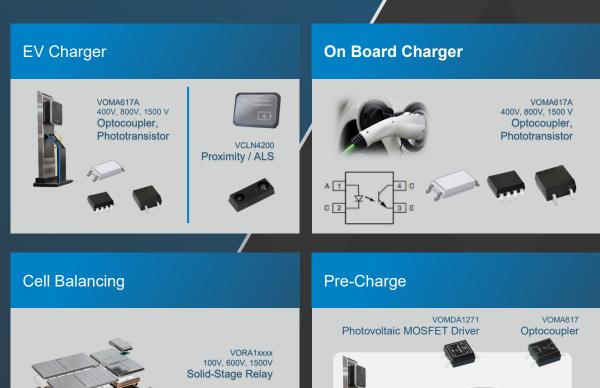


#### **Lidar Positioning Systems**











## MOSFETs for E-Mobility

#### **48V POWER SYSTEMS**

Starter Generator

**Battery Management** 

Smart Electric Oil Pump

E Booster / Supercharger

**Electronic Wafer Pump** 

DC\DC Converter

**Double Clutch Transmission** 

**Power Steering** 

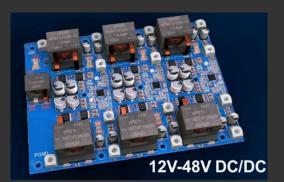
#### LEADING TECHNOLOGIES

Leading P-Ch Gen IV MOSFET, 40V, 60V, 80V, 100V

Load switches and BLDC Inverters

Leading N-Ch Gen V MOSFET, 40V / 60V / 80V / 100V / 150V Low resistance and optimized switching losses

Leading Gen 4.5 Super Junction 650V



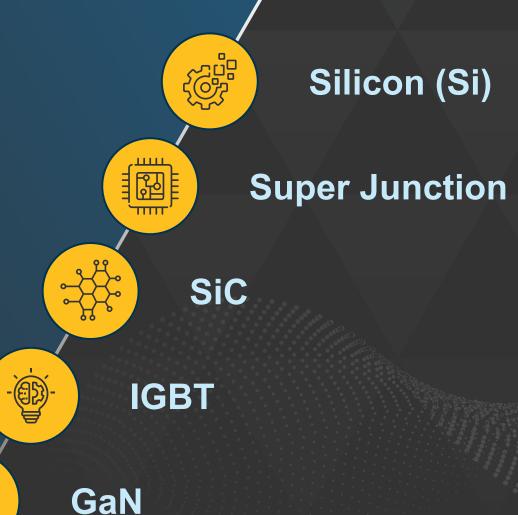
Designed for efficient, lighter & more reliable automotive electronic systems

Broad package selections for increasing power density

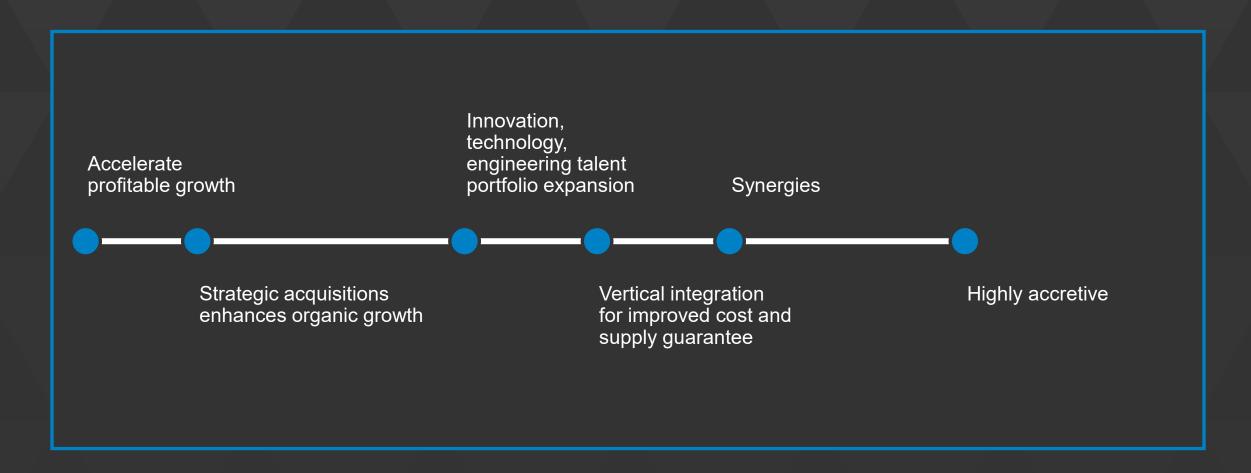




VISHAY MOSFET
Technology
landscape



### **M&A Strategy**





## CTO Summary

Enhance technical customer engagement Increased design opportunities

Acceleration of R&D programs

Strategic acquisitions



## Coming Up



## Financial Targets & Capital Allocation



06

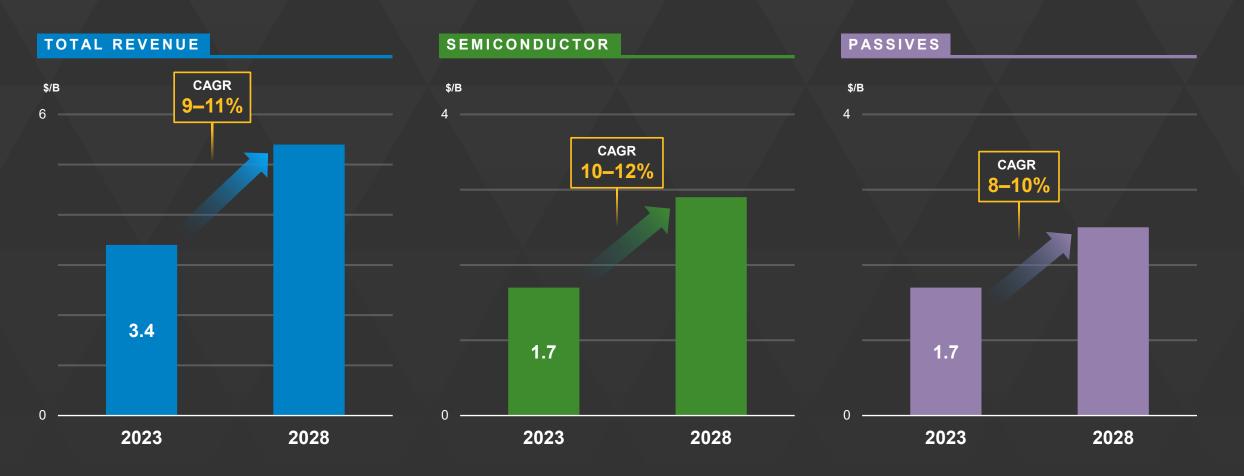


## Financial Targets & Capital Allocation

DAVE MCCONELL

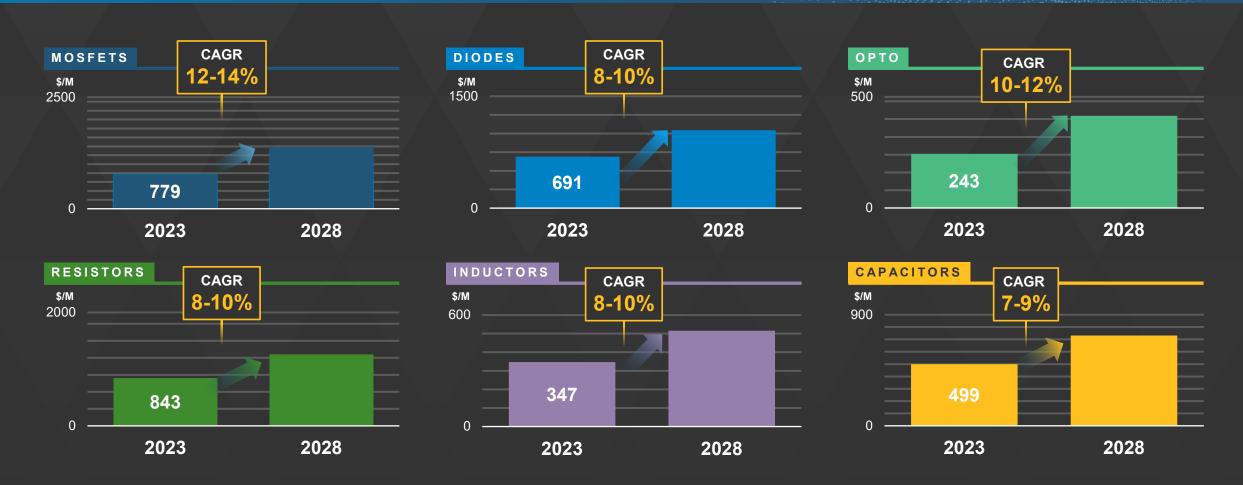
**Chief Financial Officer** 

### Accelerating revenue growth



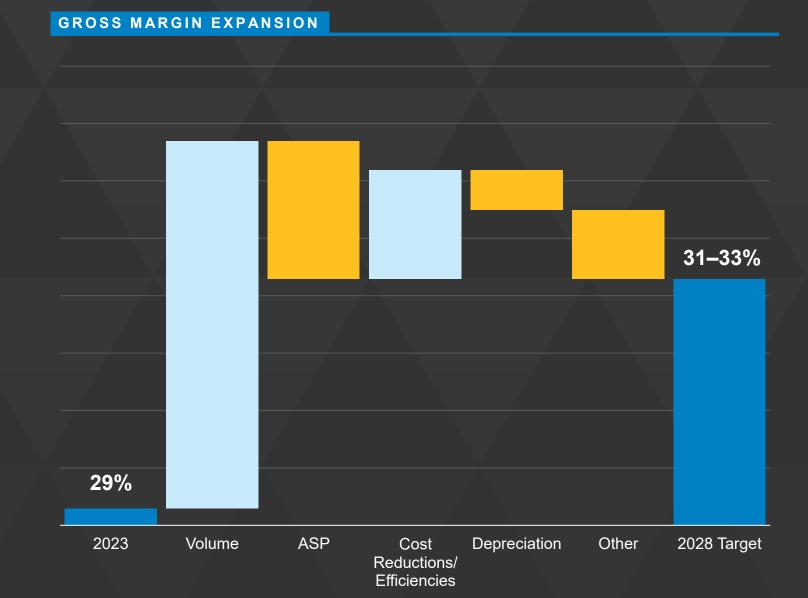


### Growth in all business segments





## Improving Gross Margin

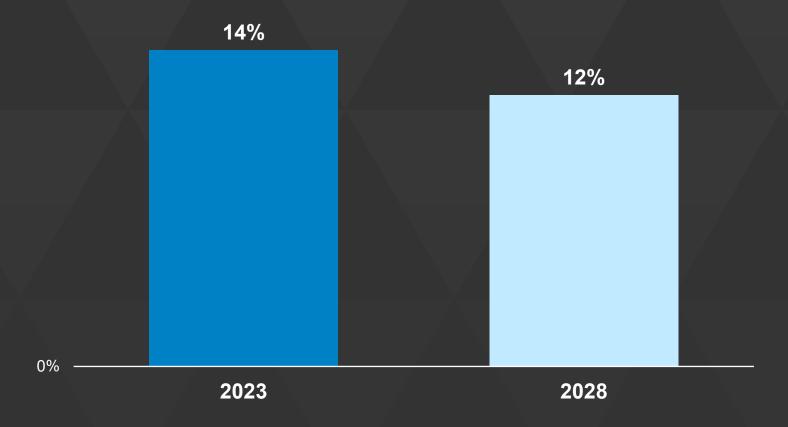




# Managing SG&A Investments



20%

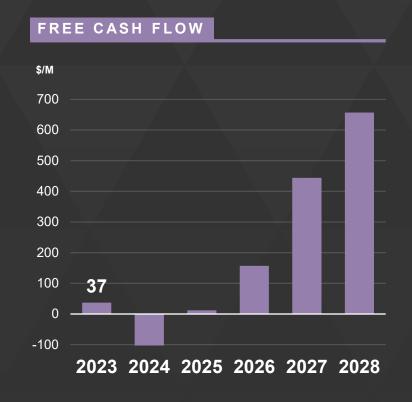




### Investing for higher cash generation











- ▶ 2028 Available liquidity of ~\$2B
- **▶** Compliance net leverage ratio of <1.0
- **▶** Credit rating of BB+/Ba2



CAPITAL **EXPENDITURES** 

2023-2025

\$1.4B

2023-2028

\$2.6B





282 202 222

Target to distribute

≥70% of free cash flow to stockholders

in the form of dividends and stock repurchases



M&A

Highly selective & accretive

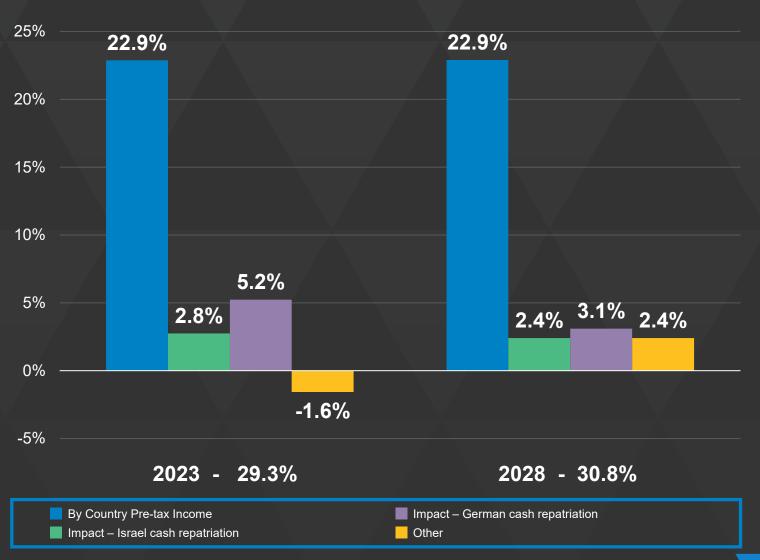
#### Focused on

- ▶ Innovation
- ▶ Technology
- ► Portfolio expansion
- ▶ Market reach
- ► Vertical integration



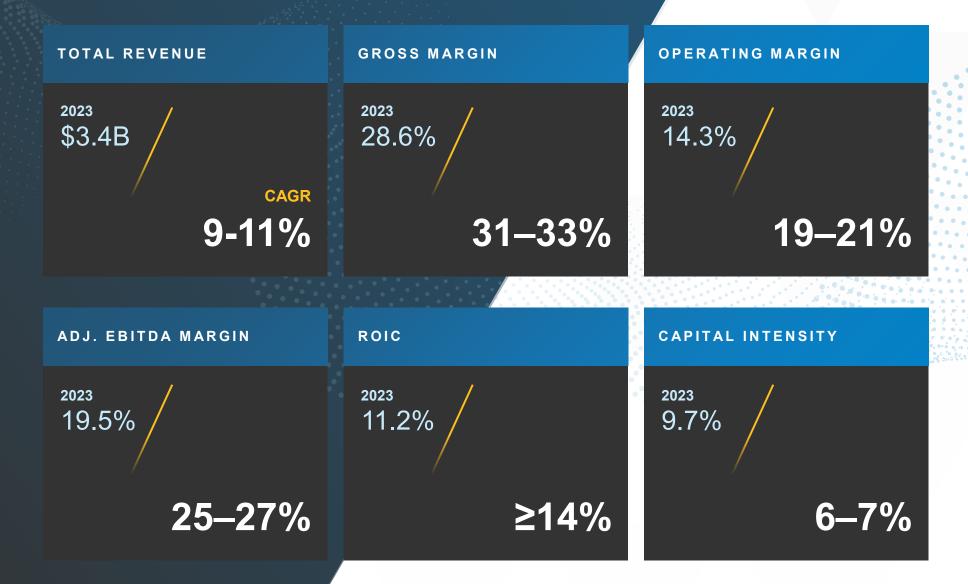
## **Tax** Strategy

#### ADJUSTED INCOME TAX RATE COMPONENTS





### 2028 Financial Goals





## Coming Up



## **Closing Remarks**

## Closing Remarks



# A New Vishay...

A Well Funded Start Up



**Customer** First



**Business** Minded



**Growth** Driven





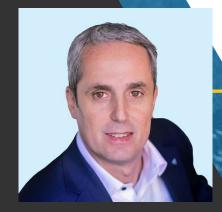
Joel Smejkal
President &
Chief Executive Officer



Jeff Webster
Executive Vice President &
Chief Operating Officer



Dave McConnell
Executive Vice President
& Chief Financial Officer



Roy Shoshani
Executive Vice President
Chief Technical Officer



#### VISHAY INTERTECHNOLOGY, INC.

Reconciliation of EBITDA and Adjusted EBITDA (Unaudited - In thousands)

	Year ended December 31, 2023	
GAAP net earnings attributable to Vishay stockholders	\$	323,820
Net earnings attributable to noncontrolling interests		1,693
Net earnings	\$	325,513
Interest expense	\$	25,131
Interest income		(31,353)
Income taxes		141,889
Depreciation and amortization		184,373
EBITDA	\$	645,553
Reconciling item		
Loss on early extinguishment of debt		18,874
Adjusted EBITDA	\$	664,427
Adjusted EBITDA margin**		19.5%
** Adjusted EBITDA as a percentage of net revenues		

#### VISHAY INTERTECHNOLOGY, INC.

Reconciliation of Free Cash (Unaudited - In thousands)

	Y	Year ended December 31, 2023	
	Decen		
Net cash provided by operating activities	\$	365,703	
Proceeds from sale of property and equipment		1,156	
Less: Capital expenditures		(329,410)	
Free cash	\$	37,449	



## **Appendix**