

Second Quarter 2019 Earnings Call

John Plant – Chairman and Chief Executive Officer
Ken Giacobbe – Chief Financial Officer

August 2, 2019



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Important Information

Forward-Looking Statements

This presentation contains statements that relate to future events and expectations and as such constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements include those containing such words as "anticipates," "believes," "could," "estimates," "expects," "forecasts," "goal," "guidance," "intends," "may," "outlook," "plans," "projects," "seeks," "sees," "should," "targets," "will," "would," or other words of similar meaning. All statements that reflect Arconic's expectations, assumptions or projections about the future, other than statements of historical fact, are forward-looking statements, including, without limitation, forecasts and expectations relating to the growth of the aerospace, defense, automotive, industrials, commercial transportation and other end markets; statements and guidance regarding future financial results or operating performance; statements regarding future strategic actions, including share repurchases, which may be subject to market conditions, legal requirements and other considerations; and statements about Arconic's strategies, outlook, business and financial prospects. These statements reflect beliefs and assumptions that are based on Arconic's perception of historical trends, current conditions and expected future developments, as well as other factors Arconic believes are appropriate in the circumstances. Forward-looking statements are not guarantees of future performance and are subject to risks, uncertainties and changes in circumstances that are difficult to predict, which could cause actual results to differ materially from those indicated by these statements. Such risks and uncertainties include, but are not limited to: (a) uncertainties regarding the planned separation, including whether it will be completed pursuant to the targeted timing, asset perimeters, and other anticipated terms, if at all; (b) the impact of the separation on the businesses of Arconic; (c) the risk that the businesses will not be separated successfully or such separation may be more difficult, time-consuming or costly than expected, which could result in additional demands on Arconic's resources, systems, procedures and controls, disruption of its ongoing business, and diversion of management's attention from other business concerns; (d) deterioration in global economic and financial market conditions generally; (e) unfavorable changes in the markets served by Arconic; (f) the inability to achieve the level of revenue growth, cash generation, cost savings, improvement in profitability and margins, fiscal discipline, or strengthening of competitiveness and operations anticipated or targeted; (g) competition from new product offerings, disruptive technologies or other developments; (h) political, economic, and regulatory risks relating to Arconic's global operations, including compliance with U.S. and foreign trade and tax laws, sanctions, embargoes and other regulations; (i) manufacturing difficulties or other issues that impact product performance, quality or safety; (j) Arconic's inability to realize expected benefits, in each case as planned and by targeted completion dates, from acquisitions, divestitures, facility closures, curtailments, expansions, or joint ventures; (k) the impact of potential cyber attacks and information technology or data security breaches; (l) the loss of significant customers or adverse changes in customers' business or financial conditions; (m) adverse changes in discount rates or investment returns on pension assets; (n) the impact of changes in aluminum prices and foreign currency exchange rates on costs and results; (o) the outcome of contingencies, including legal proceedings, government or regulatory investigations, and environmental remediation, which can expose Arconic to substantial costs and liabilities; and (p) the other risk factors summarized in Arconic's Form 10-K for the year ended December 31, 2018 and other reports filed with the U.S. Securities and Exchange Commission (SEC). Market projections are subject to the risks discussed above and other risks in the market. The statements in this presentation are made as of the date of this presentation, even if subsequently made available by Arconic on its website or otherwise. Arconic disclaims any intention or obligation to update publicly any forward-looking statements, whether in response to new information, future events, or otherwise, except as required by applicable law.

Important Information (continued)

Non-GAAP Financial Measures

Some of the information included in this presentation is derived from Arconic's consolidated financial information but is not presented in Arconic's financial statements prepared in accordance with accounting principles generally accepted in the United States of America (GAAP). Certain of these data are considered "non-GAAP financial measures" under SEC rules. These non-GAAP financial measures supplement our GAAP disclosures and should not be considered an alternative to the GAAP measure. Reconciliations to the most directly comparable GAAP financial measures and management's rationale for the use of the non-GAAP financial measures can be found in the Appendix to this presentation. Arconic has not provided reconciliations of any forward-looking non-GAAP financial measures, such as earnings per share excluding special items, adjusted free cash flow and adjusted interest expense, to the most directly comparable GAAP financial measures because such reconciliations are not available without unreasonable efforts due to the variability and complexity with respect to the charges and other components excluded from the non-GAAP measures, such as the effects of foreign currency movements, equity income, gains or losses on sales of assets, taxes, and any future restructuring or impairment charges. These reconciling items are in addition to the inherent variability already included in the GAAP measures, which includes, but is not limited to, price/mix and volume. Arconic believes such reconciliations would imply a degree of precision that would be confusing or misleading to investors.

"Organic revenue" is GAAP revenue adjusted for Tennessee Packaging (which completed its phase-down as of year-end 2018), divestitures, and changes in aluminum prices and foreign currency exchange rates relative to prior year period. "Adjusted free cash flow" is cash provided from (used for) operations, less capital expenditures, plus cash receipts from sold receivables. Any reference to historical EBITDA means adjusted EBITDA for which we have provided calculations and reconciliations in the Appendix.

Other Information

In the first quarter of 2019, Arconic transferred its aluminum extrusions operations from the Engineered Products and Solutions segment to the Global Rolled Products segment. Prior period financial information has been recast to conform to current year presentation.

2Q 2019 Highlights

Revenue (YoY)

- Revenue up 3% to \$3.7B, quarterly record since Separation
 - Organic Revenue up 10% with growth in all key markets

Profitability (YoY)

- Operating Income excluding special items up 27%¹, Margin up 240 bps
 - Engineered Products & Solutions Segment Operating Profit Margin expanded by 310 bps
 - All Segments' Operating Profit Margins expanded YoY and sequentially
 - Adj. Operating Income, Adj. Operating Income Margin & Adj. Earnings Per Share quarterly records since Separation

Balance Sheet and Cash Flow

- Adjusted Free Cash Flow of \$227M² in 2Q 2019; YTD up \$89M YoY³
- Completed \$900M of share repurchases YTD at a weighted average price of ~\$19.80 per share for 45.4M shares
- Return on Net Assets of 14.1%, up 450 bps YoY⁴, quarterly record since Separation

1) 2Q 2019 Operating loss (GAAP) = (\$81M), 2Q 2018 Operating income (GAAP) = \$324M

2) 2Q 2019 (GAAP): Cash provided from operations = \$106M, Cash used for financing activities = (\$201M), Cash provided from investing activities = \$129M

3) June YTD 2019 (GAAP): Cash used for operations = (\$152M), Cash used for financing activities = (\$942M), Cash provided from investing activities = \$171M

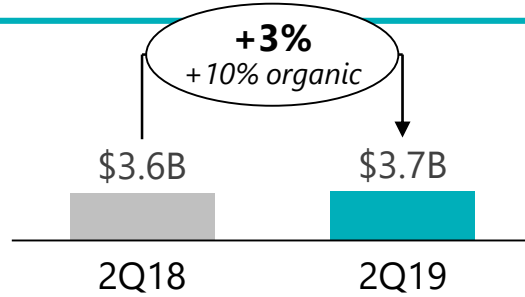
June YTD 2018 (GAAP): Cash used for operations = (\$260M), Cash used for financing activities = (\$577M), Cash provided from investing activities = \$146M

4) Based on Net loss of (\$121M) and Net income excluding Special items of \$269M in 2Q 2019 and Net Income of \$120M and Net income excluding special items of \$185M in 2Q 2018; approximately 40 bps of the YoY RONA improvement was due to asset impairments

See appendix for reconciliations

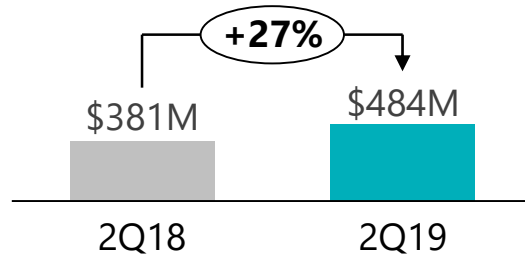
Key Financial Results – 2Q 2019

Revenue¹



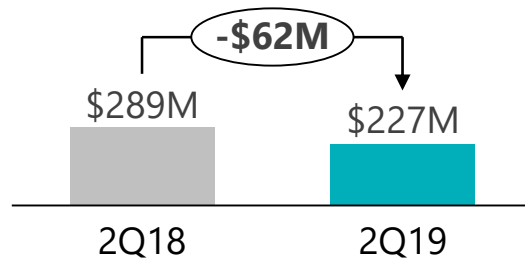
- Revenue increased \$118M or 3% YoY
- Organic Revenue increased \$344M or 10% YoY, growth in all Segments
- All key markets remain healthy

Operating Income Excluding Special Items²



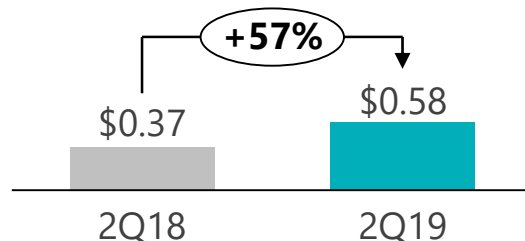
- Price \$41M: Engineered Products & Solutions and Global Rolled Products
- Volume \$39M: Aerospace \$25M
- Aluminum price \$19M
- Net Cost reduction impact, partially offset by Tennessee NA Packaging transition to Industrial and Aluminum Extrusions operational challenges

Adjusted Free Cash Flow³



- Working Capital improvement of 2 days YoY
- Pension/OPEB cash contributions of \$104M, up \$21M YoY
- Capex of \$136M, ~70% return seeking, down \$35M YoY

EPS Excluding Special Items⁴



- Increase of \$0.21 YoY driven by operational \$0.13, aluminum price \$0.03, lower share count \$0.03
- Above prior guidance of \$0.46 - \$0.51

Overview of Segment Results – 2Q 2019

| | Revenue ¹ | Segment Operating Profit ¹ | Segment Operating Profit Comments |
|-----------------|---|---------------------------------------|--|
| EP&S | <p>\$1,565M</p> <p>Up 6%</p> <p>Up 8% Organic</p> | <p>\$286M</p> <p>Up 28%, or \$62M</p> | <ul style="list-style-type: none"> + Aerospace Engine & Aerospace Defense growth + Price improvements + Net Cost reductions + Margin improved by 310 bps YoY |
| GRP | <p>\$1,577M</p> <p>Flat</p> <p>Up 11% Organic</p> | <p>\$145M</p> <p>Up 31%, or \$34M</p> | <ul style="list-style-type: none"> + Aerospace, Auto, & Commercial Transportation growth + Industrial and Commercial Transportation price + Aluminum price + Net Cost reductions - Tennessee NA Packaging transition (-\$16M) - Aluminum Extrusions operational challenges + Margin improved by 210 bps YoY |
| TCS | <p>\$548M</p> <p>Down 2%</p> <p>Up 3% Organic</p> | <p>\$107M</p> <p>Up 10%, or \$10M</p> | <ul style="list-style-type: none"> + Commercial Trans and Building & Construction growth + Net Cost reductions + Margin improved by 220 bps YoY |

Second Quarter 2019 Key Achievements

EP&S

- Record quarterly Revenue and Segment Operating Profit
- Aerospace Engines Organic Revenue up 10% YoY¹ and Aerospace Defense Organic Revenue up 26% YoY²
- Price improvements of \$24M YoY

GRP

- Commercial Airframe Organic Revenue up 19% YoY³
- Industrial and Commercial Transportation price improvements of \$18M YoY

TCS

- Record quarterly Segment Operating Profit and Margin for Segment and both Businesses
- Expansion of Wheels facility in Hungary on track for the end of the year
- Record Quality performance in Wheels YTD

Cash flows / Other

- Return on Net Assets of 14.1%, up 450 bps YoY⁴, quarterly record since Separation
- Cash balance improved \$38M sequentially, despite \$200M share buyback

1) EP&S Commercial Aerospace Engines – Reported: 2Q 2019 = \$616M; 2Q 2018 = \$565M; up 9% 2) EP&S Defense Aerospace Revenue – Reported: 2Q 2019 = \$221M; 2Q 2018 = \$176M; up 26%

3) GRP Commercial Aerospace Airframe – Reported: 2Q 2019 = \$312M; 2Q 2018 = \$263M; up 19% 4) Based on Net loss of (\$121M) and Net income excluding Special items of \$269M in 2Q 2019

and Net Income of \$120M and Net income excluding special items of \$185M in 2Q 2018; approximately 40 bps of the YoY RONA improvement was due to asset impairments

See appendix for reconciliations

Executing on The Path Forward: Key Focus Areas

- Operating Performance
- Cost Reduction
- Capital Allocation
- Portfolio Separation

Operating Performance

- Quarterly Operating Reviews by Segment
- Monthly Forecast Reviews by Segment
- Robust reviews covering key areas to drive current and future profit improvement

Cost Reduction Update

- Actions underway to reduce operating costs by ~\$260M on a run-rate basis. Increased by \$30M from the previous ~\$230M commitment.
- ~\$140M of savings expected to be captured in 2019. Increased by \$20M from the previous ~\$120M commitment.
- \$27M severance charge was taken in the quarter

Capital Allocation: Share Repurchase Update

YTD Share Buybacks

\$900M at a weighted average price of ~\$19.80 per share for 45.4M shares

- Repurchased \$700M of common stock and reduced share count by 36.4M shares
 - 31.9M shares delivered February 21st, 4.5M delivered April 29th
at an average share price of ~\$19.21
- Repurchased \$200M of common stock and reduced share count by 9.0M shares
 - 7.4M shares delivered May 6th, 1.6M delivered June 12th
at an average share price of ~\$22.18
- \$600M remains authorized for share repurchases

Separation Update: Execution

Timing

- On track for Separation completion in 2Q 2020
- Target initial Form 10 filing 4Q 2019
- Leadership search is underway

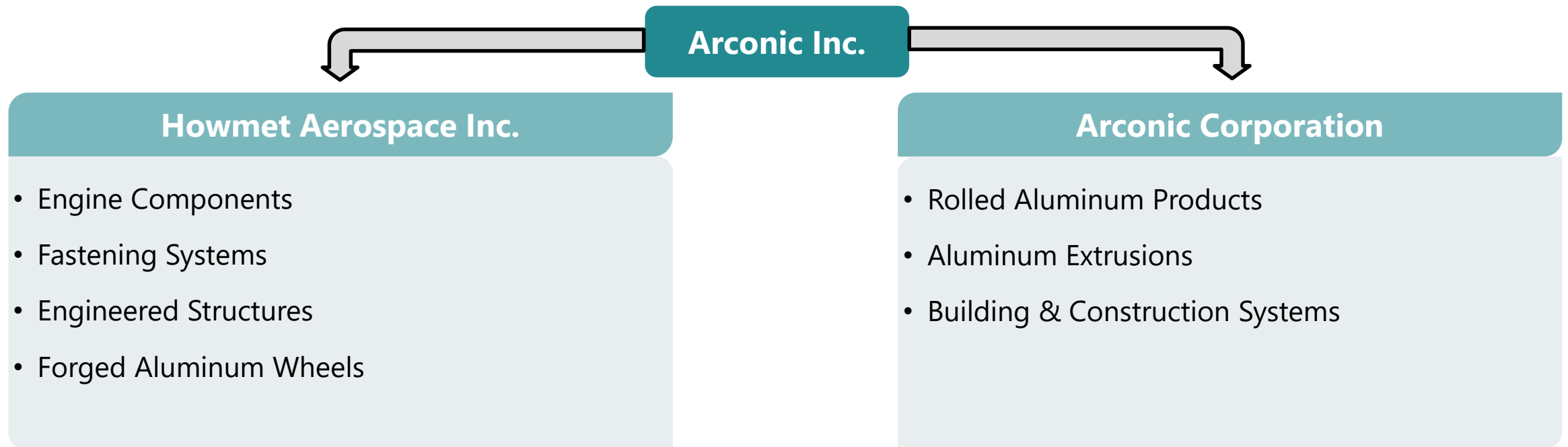
Critical Closing Conditions

- Receipt of tax opinion from counsel
- Effectiveness of Form 10 filing with the U.S. Securities and Exchange Commission
- Completion of financing
- Final approval by Board of Directors

Financial Implications

- Estimated one-time operating costs to separate of \$130M - \$160M, excluding debt breakage and tax leakage
- Estimated one-time Capex costs to separate of \$25M - \$35M
- Prudent capital structures considering capital investment needs for Remain Co. and Spin Co.

Separation Update: Structure



- Identities of Remain Co. and Spin Co. to be announced at 3Q 2019 Earnings call
- Identified non-core businesses for sale estimated value of \$100M-\$200M in proceeds with limited earnings impact
- Expect Corporate costs to be in line with industry leading peers and below current Arconic costs
- Expect minimal stranded costs

2Q 2019 Additional Actions

- ✓ Completed 5-Year plans for each business
- ✓ Non-cash asset impairments of \$444M
- ✓ Union negotiations with Steelworkers completed for USW Master Agreement and Titanium Structures Plant

On Track Divestitures progressing, one complete & one agreement pending closure

On Track Appointment/Recruitment of two Boards and Management Teams

Arconic 2019 Guidance Update¹

Full Year 2019 Guidance

| Revenue | EPS Ex. Special Items | Adjusted Free Cash Flow | EBITDA Ex. Special Items |
|----------------------------------|---|--|----------------------------------|
| Prior \$14.3B – \$14.6B | Prior \$1.75 – \$1.90 | Prior \$650M - \$750M | Prior n/a |
| Unchanged | Updated | Updated | New |
| Current \$14.3B – \$14.6B | Current \$1.95 – \$2.05 | Current \$700M - \$800M | Current ~\$2.3B +/- \$50M |
| | <ul style="list-style-type: none"> + Cost reduction + Price increases + Operations Focus | <ul style="list-style-type: none"> + Cost reduction + Price increases - Severance | |

3Q 2019 Guidance

EPS Ex. Special Items: \$0.47 - \$0.53



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Appendix



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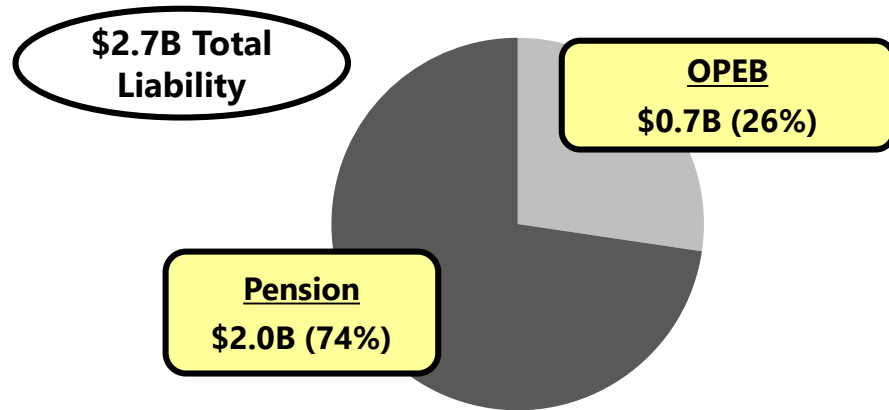
Updated 2019 Guidance Assumptions

| | Prior 2019 Assumptions | Updated 2019 Assumptions | Sensitivities and Comments |
|--|---|---|---|
| Annual Avg. Al Price | Al prices = \$2,400/MT LME Cash = \$1,975/MT MWP = \$425/MT | Al prices = \$2,300/MT LME Cash = \$1,885/MT MWP = \$415/MT | <ul style="list-style-type: none"> • +\$100/MT increase = +~\$130M Revenue impact / ~(\$10M) Operating Income impact • +\$100/MT increase = ~(\$25M) LIFO non-cash impact¹ |
| Capex | ~\$650M | ~\$650M | <ul style="list-style-type: none"> • Excludes estimated Separation impact of \$25M - \$35M |
| Tax Rate | Operational tax %= 26.5% - 28.5% Cash tax %= ~10% | Operational tax %= 26.5% - 28.5% Cash tax %= ~10% | <ul style="list-style-type: none"> • Excludes impact of potential transactions |
| Adj. Interest Expense | ~\$360M | ~\$350M | <ul style="list-style-type: none"> • Excludes debt make-whole payments |
| Depreciation & Amortization | ~\$590M | ~\$560M | |
| FX Rates | EUR: USD 1.13, GBP: USD 1.27 | EUR: USD 1.13, GBP: USD 1.24 | <ul style="list-style-type: none"> • + 0.10 USD/EUR = ~\$120M Revenue / ~\$20M Operating Income • + 0.10 USD/GBP = ~\$20M Revenue / ~(\$5M) Operating Income |
| Diluted Share Count | ~475M | ~465M | <ul style="list-style-type: none"> • Includes impact of \$900M of share repurchases • 1Q19: 489M, 2Q19: 464M, 3Q19: ~460M, 4Q19: ~450M |

Pension and OPEB Summary

Obligations

Unfunded pension and OPEB liability (6/30/2019)



- **2018 pension asset returns:** ~ -3.0%
- **2018 year-end discount rate:** ~ 4.35%
- **Pension plan funded status (12/31/2018):**
 - US ERISA: ~75%
 - Worldwide GAAP: ~67%
- **25 bps discount rate sensitivity:**
 - Pension / OPEB expense: ~\$2M (after-tax)
 - Pension / OPEB liability: ~\$170M
- **25 bps expected return on assets (EROA) sensitivity:**
 - Pension expense: ~\$10M (after-tax)

- 1) Does not include employer contributions to DC plans
- 2) Contributions of \$140M YTD June 30, 2019
- 3) Payments of \$40M YTD June 30, 2019
- 4) Includes Inventory Impact of \$18M in FY 2018 due to pension accounting change

Expense and Cash Flow

| Expense (\$M) | FY 2017 Actual | FY 2018 Actual | FY 2019 Estimate |
|---|----------------|---------------------------|------------------|
| Total Operating Income^{1,4} | \$97M | \$71M⁴ | ~\$30M |
| Non-Operating | \$154M | \$112M | ~\$120M |
| Total Pension / OPEB-related Expense | \$251M | \$183M⁴ | ~\$150M |

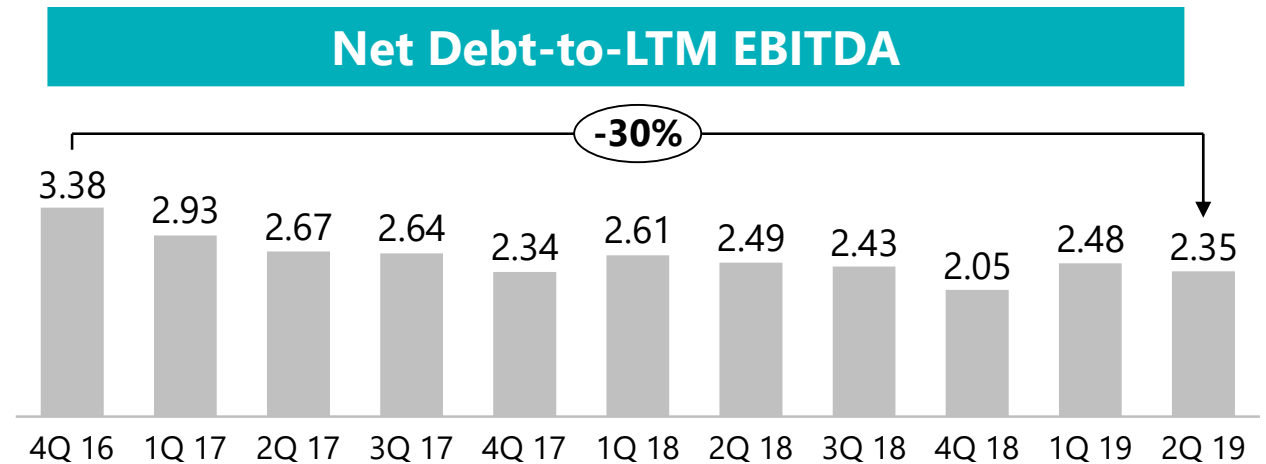
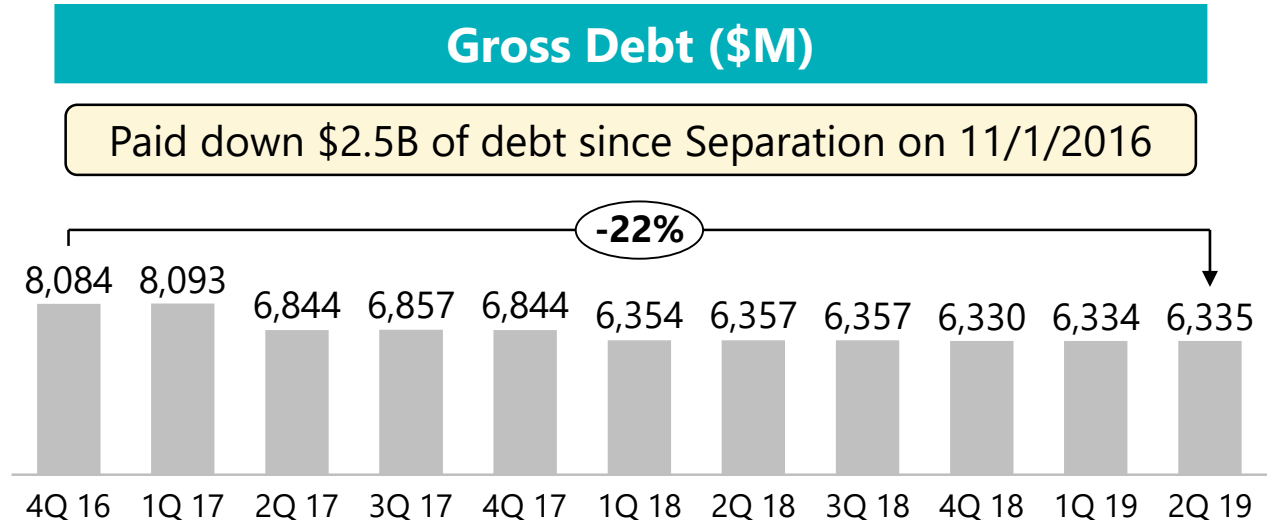
| Cash Flow (\$M) | FY 2017 Actual | FY 2018 Actual | FY 2019 Estimate |
|------------------------|----------------|----------------|----------------------|
| Pension Contributions | \$310M | \$298M | ~\$270M ² |
| OPEB Payments | \$90M | \$80M | ~\$80M ³ |
| Total Cash Flow | \$400M | \$378M | ~\$350M |

2Q 2019 Special Items

| (\$M) | (Loss) Income before income taxes | Net (Loss) Income | (Loss) Earnings per diluted share |
|--|---|-------------------------|---|
| AS REPORTED | (\$195) | (\$121) | (\$0.27) |
| Asset Impairments / Divestitures: | | | ~82% of special items are non-cash |
| Asset impairments | \$444 | \$357 | |
| Sale of additive business / energy assets | \$22 | \$17 | |
| Costs associated with planned separation | \$16 | \$16 | |
| Cost-Out Program / Environmental / Other: | | | |
| Severance costs | \$27 | \$19 | |
| Environmental remediation – Grasse River | \$25 | \$19 | |
| Lease termination and other costs | \$15 | \$11 | |
| Collective bargaining agreement negotiation | \$9 | \$7 | |
| St. Cosme fasteners plant fire costs | \$4 | \$3 | |
| Legal and other advisory costs related to Grenfell Tower | \$3 | \$2 | |
| Discrete and other special tax items | N/A | (\$61) | |
| Subtotal: Special items | \$565 | \$390 | |
| EXCLUDING SPECIAL ITEMS | \$370 | \$269 | \$0.58 |

Capital Structure: \$5.0B of Net Debt

| Capitalization at June 30, 2019 | |
|-------------------------------------|----------------|
| (\$M) | Amount |
| Cash | \$1,357 |
| Gross Debt | \$6,335 |
| Net Debt | \$4,978 |
| Net Debt-to-LTM EBITDA ¹ | 2.35 |



Organic Revenue¹ Growth for 2Q 2019

| | 2Q 2018 (\$M) | 2Q 2019 (\$M) | % Change |
|--|------------------|------------------|------------|
| Arconic Revenue | \$3,573 | \$3,691 | 3% |
| less Tennessee Packaging | 46 | - | |
| less Eger | 9 | - | |
| Subtotal: Portfolio Changes | 55 | - | |
| less Aluminum Price ² | - | (136) | |
| less Foreign Currency ² | - | (35) | |
| Subtotal: Aluminum Price & Foreign Currency | - | (171) | |
| Total: Arconic Revenue, Organic | \$3,518 | \$3,862 | 10% |

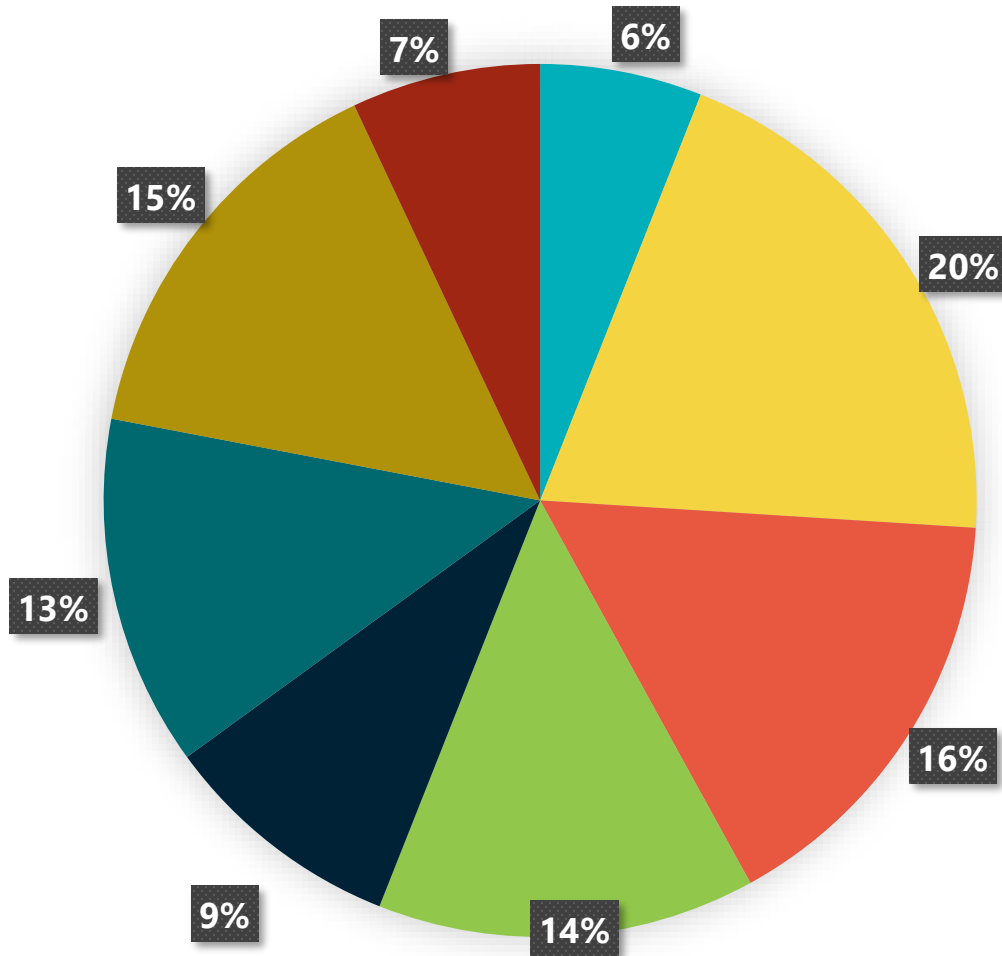
| | 2Q 2018 (\$M) | 2Q 2019 (\$M) | % Change |
|--|------------------|------------------|-----------|
| EP&S Revenue | \$1,474 | \$1,565 | 6% |
| less Eger | 9 | - | |
| less Aluminum Price ² | - | (4) | |
| less Foreign Currency ² | - | (11) | |
| Subtotal: Aluminum Price & Foreign Currency | - | (15) | |
| Total: EP&S Revenue, Organic | \$1,465 | \$1,580 | 8% |

| | 2Q 2018 (\$M) | 2Q 2019 (\$M) | % Change |
|--|------------------|------------------|------------|
| GRP Revenue | \$1,573 | \$1,577 | 0% |
| less Tennessee Packaging | 46 | - | |
| less Aluminum Price ² | - | (112) | |
| less Foreign Currency ² | - | (11) | |
| Subtotal: Aluminum Price & Foreign Currency | - | (123) | |
| Total: GRP Revenue, Organic | \$1,527 | \$1,700 | 11% |

| | 2Q 2018 (\$M) | 2Q 2019 (\$M) | % Change |
|--|------------------|------------------|-------------|
| TCS Revenue | \$562 | \$548 | (2%) |
| less Aluminum Price ² | - | (20) | |
| less Foreign Currency ² | - | (13) | |
| Subtotal: Aluminum Price & Foreign Currency | - | (33) | |
| Total: TCS Revenue, Organic | \$562 | \$581 | 3% |

Organic Revenue by Market – 2Q 2019

**Revenue by Market
(% of total)**



**Revenue by Market
Year-over-Year
(% change)²**

| | |
|---------------------------------|------------|
| Aerospace - Defense | 25% |
| Aerospace - Commercial Airframe | 7% |
| Aerospace - Commercial Engine | 10% |
| Sub-Total Aerospace | 11% |
| Automotive | 5% |
| Building & Construction | 2% |
| Commercial Transportation | 7% |
| Industrial & Other | 15% |
| Packaging ¹ | 21% |

2Q 2019 YoY Aluminum Price Tailwind

Year-over-Year Operating Income Impact from Aluminum Price Changes

| USD Millions | 1Q'19 vs 1Q'18 Actual | 2Q'19 vs 2Q'18 Actual |
|------------------------------|-----------------------|-----------------------|
| LIFO ¹ /Metal Lag | (\$2) | \$21 |
| Trading Desk ² | \$9 | (\$5) |
| Scrap Spreads | (\$2) | \$1 |
| Operational | \$2 | \$2 |
| Arconic Total | \$7 | \$19 |

Aluminum price impacts 2Q 2019 vs. 2Q 2018

Year-over-Year Impact from Aluminum Price Changes

| | 2Q 2019 | | |
|----------------|----------------|------------------------|--------------------|
| | Revenue (\$M) | Operating Income (\$M) | Operating Income % |
| EP&S | (\$4) | \$9 | +60 bps |
| GRP | (\$112) | \$8 | +110 bps |
| TCS | (\$20) | \$2 | +100 bps |
| Arconic | (\$136) | \$19 | +90 bps |

| | 1H 2019 | | |
|----------------|----------------|------------------------|--------------------|
| | Revenue (\$M) | Operating Income (\$M) | Operating Income % |
| EP&S | (\$6) | \$15 | +50 bps |
| GRP | (\$170) | \$4 | +60 bps |
| TCS | (\$19) | \$7 | +90 bps |
| Arconic | (\$195) | \$26 | +70 bps |

Reconciliation of Net income excluding Special items

(\$ in millions, except per-share amounts)

| | Net income excluding Special items | | Diluted EPS excluding Special items | |
|------------------------------------|------------------------------------|---------------|-------------------------------------|---------------|
| | Quarter ended | | Quarter ended | |
| | June 30, 2019 | June 30, 2018 | June 30, 2019 | June 30, 2018 |
| Net (loss) income | \$(121) | \$120 | \$(0.27) | \$0.24 |
| Special items: | | | | |
| Restructuring and other charges | 499 | 15 | | |
| Discrete tax items ⁽¹⁾ | (36) | 21 | | |
| Other special items ⁽²⁾ | 41 | 42 | | |
| Tax impact ⁽³⁾ | (114) | (13) | | |
| Net income excluding Special items | \$269 | \$185 | \$0.58 | \$0.37 |

Net income excluding Special items and Diluted EPS excluding Special items are non-GAAP financial measures. Management believes that these measures are meaningful to investors because management reviews the operating results of Arconic excluding the impacts of Restructuring and other charges, Discrete tax items, and Other special items (collectively, "Special items"). There can be no assurances that additional special items will not occur in future periods. To compensate for this limitation, management believes that it is appropriate to consider both Net income determined under GAAP as well as Net income excluding Special items.

(1) Discrete tax items for each period included the following:

- for the quarter ended June 30, 2019, a benefit associated with the deduction of foreign taxes that were previously claimed as a U.S. foreign tax credit (\$25), a benefit to remeasure certain deferred tax assets as a result of a foreign tax rate change (\$12), and a net charge for a number of small items (\$1); and
- for the quarter ended June 30, 2018, charges resulting from the Company's then ongoing analysis of the U.S. Tax Cuts and Jobs Acts of 2017 related to an increase in the provisional estimate of the one-time transition tax (\$18) and Alternative Minimum Tax (AMT) credits expected to be refunded upon filing the 2018 tax return that will result in no benefit under government sequestration (\$3).

(2) Other special items for each period included the following:

- for the quarter ended June 30, 2019, a favorable tax impact resulting from the difference between Arconic's consolidated estimated annual effective tax rate and the statutory rate applicable to special items (\$32), costs associated with ongoing environmental remediation (\$25), costs associated with the planned separation of Arconic (\$16), costs associated with negotiation of the collective bargaining agreement with the USW (\$9), an impairment of assets of the energy business (\$9), an unfavorable tax impact related to the interim period treatment of operational losses in certain foreign jurisdictions for which no tax benefit was recognized (\$7), costs related to a fire at a fasteners plant (\$4), and legal and other advisory costs related to Grenfell Tower (\$3); and
- for the quarter ended June 30, 2018, costs related to settlements of certain customer claims primarily related to product introductions (\$38) and legal and other advisory costs related to Grenfell Tower (\$4).

(3) The tax impact on Special items is based on the applicable statutory rates whereby the difference between such rates and Arconic's consolidated estimated annual effective tax rate is itself a Special item.

The average number of shares applicable to diluted EPS excluding Special items, includes certain share equivalents as their effect was dilutive. For all periods presented, share equivalents associated with outstanding employee stock options and awards and shares underlying outstanding convertible debt (acquired through the acquisition of RTI) were dilutive based on Net income excluding Special items. The average number of shares applicable to diluted EPS excluding Special items for 2019 included the impact of the accelerated share repurchase programs of the Company's common stock.

Reconciliation of Net income excluding Special items

(\$ in millions, except per-share amounts)

| | Net income excluding Special items | | Diluted EPS excluding Special items | |
|------------------------------------|------------------------------------|---------------|-------------------------------------|---------------|
| | Six months ended | | Six months ended | |
| | June 30, 2019 | June 30, 2018 | June 30, 2019 | June 30, 2018 |
| Net income | \$66 | \$263 | \$0.14 | \$0.53 |
| Special items: | | | | |
| Restructuring and other charges | 511 | 22 | | |
| Discrete tax items ⁽¹⁾ | (35) | 23 | | |
| Other special items ⁽²⁾ | 53 | 67 | | |
| Tax impact ⁽³⁾ | (118) | (21) | | |
| Net income excluding Special items | \$477 | \$354 | \$1.01 | \$0.71 |

Net income excluding Special items and Diluted EPS excluding Special items are non-GAAP financial measures. Management believes that these measures are meaningful to investors because management reviews the operating results of Arconic excluding the impacts of Restructuring and other charges, Discrete tax items, and Other special items (collectively, “Special items”). There can be no assurances that additional special items will not occur in future periods. To compensate for this limitation, management believes that it is appropriate to consider both Net income determined under GAAP as well as Net income excluding Special items.

(1) Discrete tax items for each period included the following:

- for the six months ended June 30, 2019, a benefit associated with the deduction of foreign taxes that were previously claimed as a U.S. foreign tax credit (\$25), a benefit for foreign tax rate changes (\$12), and a net charge for a number of small items (\$2); and
- for the six months ended June 30, 2018, charges resulting from the Company’s then ongoing analysis of the U.S. Tax Cuts and Jobs Acts of 2017 related an increase in the provisional estimate of the one-time transition tax (\$18) and AMT credits expected to be refunded upon filing the 2018 tax return that will result in no benefit under government sequestration (\$3), and a charge for a number of small items (\$2).

(2) Other special items for each period included the following:

- for the six months ended June 30, 2019, a favorable tax impact resulting from the difference between Arconic’s consolidated estimated annual effective tax rate and the statutory rate applicable to special items (\$33), costs associated with ongoing environmental remediation (\$25), costs associated with the planned separation of Arconic (\$19), costs associated with negotiation of the collective bargaining agreement with the USW (\$9), an unfavorable tax impact related to the interim period treatment of operational losses in certain foreign jurisdictions for which no tax benefit was recognized (\$9), an impairment of assets of the energy business (\$9), strategy and portfolio review costs (\$6), legal and other advisory costs related to Grenfell Tower (\$5), and costs related to a fire at a fasteners plant (\$4); and
- for the six months ended June 30, 2018, costs related to settlements of certain customer claims primarily related to product introductions (\$38), costs related to the early redemption of the Company’s then outstanding 5.720% Senior Notes due 2019 (\$19), legal and other advisory costs related to Grenfell Tower (\$9), and a charge for a number of small tax items (\$1).

(3) The tax impact on Special items is based on the applicable statutory rates whereby the difference between such rates and Arconic’s consolidated estimated annual effective tax rate is itself a Special item.

The average number of shares applicable to diluted EPS excluding Special items, includes certain share equivalents as their effect was dilutive. For all periods presented, share equivalents associated with outstanding employee stock options and awards and shares underlying outstanding convertible debt (acquired through the acquisition of RTI) were dilutive based on Net income excluding Special items. The average number of shares applicable to diluted EPS excluding Special items for 2019 included the impact of the accelerated share repurchase programs of the Company’s common stock.

Reconciliation of Operational Tax Rate

(\$ in millions)

| | Quarter ended June 30, 2019 | | | Six months ended June 30, 2019 | | |
|--------------------------------------|-----------------------------|------------------------------|-------------|--------------------------------|------------------------------|-------------|
| | As reported | Special items ⁽¹⁾ | As adjusted | As reported | Special items ⁽¹⁾ | As adjusted |
| (Loss) income before income taxes | \$(195) | \$565 | \$370 | \$62 | \$588 | \$650 |
| (Benefit) provision for income taxes | (74) | 175 | 101 | (4) | 177 | 173 |
| Operational tax rate | 37.9% | | 27.3% | (6.5)% | | 26.6% |

Operational tax rate is a non-GAAP financial measure. Management believes that this measure is meaningful to investors because management reviews the operating results of Arconic excluding the impacts of Special items. There can be no assurances that additional Special items will not occur in future periods. To compensate for this limitation, management believes that it is appropriate to consider both the Effective tax rate determined under GAAP as well as the Operational tax rate.

⁽¹⁾ See Net income excluding Special items reconciliation above for a description of Special items.

Calculation of Engineered Products and Solutions Segment Operating Profit Margin

| (\$ in millions) | 1Q18 | 2Q18 | 3Q18 | 4Q18 | 2018 | 1Q19 | 2Q19 |
|---------------------------------|---------|---------|---------|---------|---------|---------|---------|
| Segment operating profit | \$209 | \$224 | \$235 | \$216 | \$884 | \$253 | \$286 |
| Third-party sales | \$1,426 | \$1,474 | \$1,445 | \$1,487 | \$5,832 | \$1,502 | \$1,565 |
| Segment operating profit margin | 14.7% | 15.2% | 16.3% | 14.5% | 15.2% | 16.8% | 18.3% |

In the first quarter of 2019, the Company transferred its aluminum extrusions operations from the Arconic Engineered Structures business unit within the Engineered Products and Solutions segment to the Global Rolled Products segment. Prior period financial information has been recast to conform to current year presentation. Segment performance under Arconic's management reporting system is evaluated based on a number of factors; however, the primary measure of performance is Segment operating profit. Arconic's definition of Segment operating profit is Operating income excluding Special items. Special items include Restructuring and other charges. Segment operating profit includes the impact of LIFO inventory accounting, metal price lag, intersegment profit eliminations, and derivative activities.

Calculation of Global Rolled Products Segment Operating Profit Margin

| (\$ in millions) | 1Q18 | 2Q18 | 3Q18 | 4Q18 | 2018 | 1Q19 | 2Q19 |
|---|---------|---------|---------|---------|---------|---------|---------|
| Segment operating profit ⁽¹⁾ | \$124 | \$111 | \$77 | \$81 | \$393 | \$107 | \$145 |
| Third-party sales | \$1,481 | \$1,573 | \$1,547 | \$1,487 | \$6,088 | \$1,503 | \$1,577 |
| Segment operating profit margin | 8.4% | 7.1% | 5.0% | 5.4% | 6.5% | 7.1% | 9.2% |
| Third-party aluminum shipments (kmt) | 322 | 330 | 330 | 319 | 1,301 | 331 | 367 |

In the first quarter of 2019, the Company transferred its aluminum extrusions operations from the Arconic Engineered Structures business unit within the Engineered Products and Solutions segment to the Global Rolled Products segment. Prior period financial information has been recast to conform to current year presentation. Segment performance under Arconic's management reporting system is evaluated based on a number of factors; however, the primary measure of performance is Segment operating profit. Arconic's definition of Segment operating profit is Operating income excluding Special items. Special items include Restructuring and other charges. Segment operating profit includes the impact of LIFO inventory accounting, metal price lag, intersegment profit eliminations, and derivative activities.

⁽¹⁾ Segment operating profit in the second quarter of 2018 included the impact of a \$23 charge related to a physical inventory adjustment at one plant.

Calculation of Transportation and Construction Solutions Segment Operating Profit Margin

| (\$ in millions) | 1Q18 | 2Q18 | 3Q18 | 4Q18 | 2018 | 1Q19 | 2Q19 |
|---------------------------------|-------|-------|-------|-------|---------|-------|-------|
| Segment operating profit | \$67 | \$97 | \$77 | \$63 | \$304 | \$87 | \$107 |
| Third-party sales | \$537 | \$562 | \$530 | \$497 | \$2,126 | \$535 | \$548 |
| Segment operating profit margin | 12.5% | 17.3% | 14.5% | 12.7% | 14.3% | 16.3% | 19.5% |

Segment performance under Arconic's management reporting system is evaluated based on a number of factors; however, the primary measure of performance is Segment operating profit. Arconic's definition of Segment operating profit is Operating income excluding Special items. Special items include Restructuring and other charges. Segment operating profit includes the impact of LIFO inventory accounting, metal price lag, intersegment profit eliminations, and derivative activities.

Calculation of Total Segment Operating Profit Margin

| (\$ in millions) | 1Q18 | 2Q18 | 3Q18 | 4Q18 | 2018 | 1Q19 | 2Q19 |
|---|---------|---------|---------|---------|----------|---------|---------|
| Sales – Engineered Products and Solutions | \$1,426 | \$1,474 | \$1,445 | \$1,487 | \$5,832 | \$1,502 | \$1,565 |
| Sales – Global Rolled Products | 1,481 | 1,573 | 1,547 | 1,487 | 6,088 | 1,503 | 1,577 |
| Sales – Transportation and Construction Solutions | 537 | 562 | 530 | 497 | 2,126 | 535 | 548 |
| Total segment sales | \$3,444 | \$3,609 | \$3,522 | \$3,471 | \$14,046 | \$3,540 | \$3,690 |
| Total segment operating profit ⁽¹⁾⁽²⁾ | \$400 | \$432 | \$389 | \$360 | \$1,581 | \$447 | \$538 |
| Total segment operating profit margin | 11.6% | 12.0% | 11.0% | 10.4% | 11.3% | 12.6% | 14.6% |

In the first quarter of 2019, the Company transferred its aluminum extrusions operations from the Arconic Engineered Structures business unit within the Engineered Products and Solutions segment to the Global Rolled Products segment. Prior period financial information has been recast to conform to current year presentation. Segment performance under Arconic’s management reporting system is evaluated based on a number of factors; however, the primary measure of performance is Segment operating profit. Arconic’s definition of Segment operating profit is Operating income excluding Special items. Special items include Restructuring and other charges. Segment operating profit includes the impact of LIFO inventory accounting, metal price lag, intersegment profit eliminations, and derivative activities.

⁽¹⁾ See Reconciliation of Total segment operating profit to Consolidated income before income taxes.

⁽²⁾ For the quarter ended June 30, 2018, Segment operating profit for the Global Rolled Products segment included the impact of a \$23 charge related to a physical inventory adjustment at one plant.

Reconciliation of Total segment operating profit to Consolidated income before income taxes

| (\$ in millions) | 1Q18 | 2Q18 | 3Q18 | 4Q18 | 2018 | 1Q19 | 2Q19 |
|--|-------|-------|-------|-------|---------|-------|---------|
| Total segment operating profit ⁽¹⁾ | \$400 | \$432 | \$389 | \$360 | \$1,581 | \$447 | \$538 |
| Unallocated amounts: | | | | | | | |
| Restructuring and other charges | (7) | (15) | 2 | 11 | (9) | (12) | (499) |
| Corporate expense ⁽²⁾ | (60) | (93) | (46) | (48) | (247) | (61) | (120) |
| Consolidated operating income (loss) | 333 | 324 | 345 | 323 | 1,325 | 374 | (81) |
| Interest expense ⁽³⁾ | (114) | (89) | (88) | (87) | (378) | (85) | (85) |
| Other expense, net | (20) | (41) | (8) | (10) | (79) | (32) | (29) |
| Consolidated income (loss) before income taxes | \$199 | \$194 | \$249 | \$226 | \$868 | \$257 | \$(195) |

Segment performance under Arconic's management reporting system is evaluated based on a number of factors; however, the primary measure of performance is Segment operating profit. Arconic's definition of Segment operating profit is Operating income excluding Special items. Special items include Restructuring and other charges. Segment operating profit includes the impact of LIFO inventory accounting, metal price lag, intersegment profit eliminations, and derivative activities. Differences between certain segment totals and consolidated Arconic are in Corporate.

- (1) For the quarter ended June 30, 2018, Segment operating profit for the Global Rolled Products segment included the impact of a \$23 charge related to a physical inventory adjustment at one plant.
- (2) For the quarter ended June 30, 2018, Corporate expense included \$38 of costs related to settlements of certain customer claims primarily related to product introductions. For the quarter ended June 30, 2019, Corporate expense included \$25 of costs associated with ongoing environmental remediation, \$16 of costs associated with the planned separation of Arconic, \$9 of costs associated with negotiation of the collective bargaining agreement with the United Steelworkers (USW); \$9 impairment of assets of the energy business; and \$4 of costs related to a fire at a fasteners plant.
- (3) For the quarter ended March 31, 2018, Interest expense included \$19 related to the early redemption of the Company's then outstanding 5.720% Senior Notes due 2019.

Reconciliation of Operating Income Excluding Special Items and Operating Income Margin, Excluding Special Items

| (\$ in millions) | 1Q18 | 2Q18 | 3Q18 | 4Q18 | 2018 | 1Q19 | 2Q19 |
|---|---------|---------|---------|---------|----------|---------|---------|
| Operating income (loss) | \$333 | \$324 | \$345 | \$323 | \$1,325 | \$374 | \$(81) |
| Special items: | | | | | | | |
| Restructuring and other charges | 7 | 15 | (2) | (11) | 9 | 12 | 499 |
| Costs associated with planned separation | — | — | — | — | — | 3 | 16 |
| Environmental remediation | — | — | — | — | — | — | 25 |
| Collective bargaining agreement negotiation | — | — | — | — | — | — | 9 |
| Impairment of energy business assets | — | — | — | — | — | — | 9 |
| Legal and other advisory costs related to Grenfell Tower | 5 | 4 | 5 | 4 | 18 | 2 | 3 |
| Strategy and portfolio review costs | — | — | — | 7 | 7 | 6 | — |
| Fasteners plant fire costs | — | — | — | — | — | — | 4 |
| Settlements of certain customer claims primarily related to product introductions | — | 38 | — | — | 38 | — | — |
| Operating income excluding Special items | \$345 | \$381 | \$348 | \$323 | \$1,397 | \$397 | \$484 |
| Sales | \$3,445 | \$3,573 | \$3,524 | \$3,472 | \$14,014 | \$3,541 | \$3,691 |
| Operating income margin | 9.7% | 9.1% | 9.8% | 9.3% | 9.5% | 10.6% | n/a |
| Operating income margin, excluding Special items | 10.0% | 10.7% | 9.9% | 9.3% | 10.0% | 11.2% | 13.1% |

Operating income excluding Special items and Operating income margin, excluding Special items are non-GAAP financial measures. Management believes that these measures are meaningful to investors because management reviews the operating results of Arconic excluding the impacts of Special items. There can be no assurances that additional Special items will not occur in future periods. To compensate for this limitation, management believes that it is appropriate to consider both Operating (loss) income determined under GAAP as well as Operating income excluding Special items.

Reconciliation of Adjusted Free Cash Flow

| (\$ in millions) | 1Q18 | 2Q18 | 3Q18 | 4Q18 | 2018 | 1Q19 | 2Q19 |
|--|---------|-------|-------|-------|-------|---------|-------|
| Cash (used for) provided from operations | \$(436) | \$176 | \$51 | \$426 | \$217 | \$(258) | \$106 |
| Cash receipts from sold receivables | 136 | 284 | 273 | 323 | 1,016 | 160 | 257 |
| Capital expenditures | (117) | (171) | (209) | (271) | (768) | (168) | (136) |
| Adjusted free cash flow | \$(417) | \$289 | \$115 | \$478 | \$465 | \$(266) | \$227 |

Accounting guidance effective in 2018 changed the classification of Cash receipts from sold receivables in the cash flow statement, reclassifying it from operating activities to investing activities. Under the prior accounting guidance, Cash receipts from sold receivables were included in (increase) decrease in receivables in the operating activities section of the statement of cash flows.

Net cash funding from the sale of accounts receivables has remained unchanged at \$350 million each quarter since the first quarter of 2016.

There has been no change in the net cash funding in the sale of accounts receivable program in the second quarter of 2019. It remains at \$350.

Adjusted free cash flow is a non-GAAP financial measure. Management believes that this measure is meaningful to investors because management reviews cash flows generated from operations after taking into consideration capital expenditures (due to the fact that these expenditures are considered necessary to maintain and expand Arconic's asset base and are expected to generate future cash flows from operations), as well as cash receipts from net sales of beneficial interest in sold receivables. It is important to note that Adjusted free cash flow does not represent the residual cash flow available for discretionary expenditures since other non-discretionary expenditures, such as mandatory debt service requirements, are not deducted from the measure.

Reconciliation of Organic Revenue

| (\$ in millions) | Quarter ended June 30, | | Quarter ended March 31, | | Six months ended June 30, | |
|--|---------------------------|----------------|----------------------------|----------------|------------------------------|----------------|
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| | Arconic | | | | | |
| Sales – Arconic | \$3,691 | \$3,573 | \$3,541 | \$3,445 | \$7,232 | \$7,018 |
| Less: | | | | | | |
| Sales – Tennessee packaging | — | 46 | — | 43 | — | 89 |
| Sales – Eger forgings | — | 9 | — | 10 | — | 19 |
| Sales – Latin America extrusions | — | — | — | 25 | — | 25 |
| Aluminum price impact | (136) | n/a | (59) | n/a | (195) | n/a |
| Foreign currency impact | (35) | n/a | (55) | n/a | (90) | n/a |
| Arconic Organic revenue | \$3,862 | \$3,518 | \$3,655 | \$3,367 | \$7,517 | \$6,885 |
| Engineered Products and Solutions (EP&S) | | | | | | |
| Sales | \$1,565 | \$1,474 | \$1,502 | \$1,426 | \$3,067 | \$2,900 |
| Less: | | | | | | |
| Sales – Eger forgings | — | 9 | — | 10 | — | 19 |
| Aluminum price impact | (4) | n/a | (2) | n/a | (6) | n/a |
| Foreign currency impact | (11) | n/a | (13) | n/a | (24) | n/a |
| EP&S Organic revenue | \$1,580 | \$1,465 | \$1,517 | \$1,416 | \$3,097 | \$2,881 |
| Global Rolled Products (GRP) | | | | | | |
| Sales | \$1,577 | \$1,573 | \$1,503 | \$1,481 | \$3,080 | \$3,054 |
| Less: | | | | | | |
| Sales – Tennessee packaging | — | 46 | — | 43 | — | 89 |
| Aluminum price impact | (112) | n/a | (58) | n/a | (170) | n/a |
| Foreign currency impact | (11) | n/a | (26) | n/a | (37) | n/a |
| GRP Organic revenue | \$1,700 | \$1,527 | \$1,587 | \$1,438 | \$3,287 | \$2,965 |
| Transportation and Construction Solutions (TCS) | | | | | | |
| Sales | \$548 | \$562 | \$535 | \$537 | \$1,083 | \$1,099 |
| Less: | | | | | | |
| Sales – Latin America extrusions | — | — | — | 25 | — | 25 |
| Aluminum price impact | (20) | n/a | 1 | n/a | (19) | n/a |
| Foreign currency impact | (13) | n/a | (16) | n/a | (29) | n/a |
| TCS Organic revenue | \$581 | \$562 | \$550 | \$512 | \$1,131 | \$1,074 |

Organic revenue is a non-GAAP financial measure. Management believes this measure is meaningful to investors as it presents revenue on a comparable basis for all periods presented due to the impact of the ramp-down of Arconic's North American packaging business at its Tennessee operations (completed in December 2018), the sale of the forgings business in Eger, Hungary (divested in December 2018), the sale of Latin America extrusions (divested in April 2018), and the impact of changes in aluminum prices and foreign currency fluctuations relative to the prior year periods. The revenue from a small manufacturing facility that was divested in the second quarter of 2019 was not material and therefore is included in Organic revenue.

Reconciliation of Net Debt

| (\$ in millions) | June 30, 2019 | March 31, 2019 | December 31, 2018 | September 30, 2018 | June 30, 2018 | March 31, 2018 | December 31, 2017 | September 30, 2017 | June 30, 2017 |
|---|------------------|-------------------|----------------------|-----------------------|------------------|-------------------|----------------------|-----------------------|------------------|
| Short-term debt | \$434 | \$435 | \$434 | \$42 | \$45 | \$45 | \$38 | \$55 | \$48 |
| Long-term debt, less amount due within one year | 5,901 | 5,899 | 5,896 | 6,315 | 6,312 | 6,309 | 6,806 | 6,802 | 6,796 |
| Total debt | 6,335 | 6,334 | 6,330 | 6,357 | 6,357 | 6,354 | 6,844 | 6,857 | 6,844 |
| Less: Cash and cash equivalents | 1,357 | 1,319 | 2,277 | 1,535 | 1,455 | 1,205 | 2,150 | 1,815 | 1,785 |
| Net debt | \$4,978 | \$5,015 | \$4,053 | \$4,822 | \$4,902 | \$5,149 | \$4,694 | \$5,042 | \$5,059 |

Net debt is a non-GAAP financial measure. Management believes that this measure is meaningful to investors because management assesses Arconic's leverage position after factoring in available cash that could be used to repay outstanding debt.

Reconciliation of Net debt to Adjusted EBITDA Excluding Special Items

(\$ in millions)

| | Trailing-12 months ended | | | | | | | | |
|---|--------------------------|-------------------|----------------------|-----------------------|------------------|-------------------|----------------------|-----------------------|------------------|
| | June 30, 2019 | March 31, 2019 | December 31, 2018 | September 30, 2018 | June 30, 2018 | March 31, 2018 | December 31, 2017 | September 30, 2017 | June 30, 2017 |
| Net income (loss) attributable to Arconic Discontinued operations | \$ 445 | \$ 686 | \$ 642 | \$ (303) | \$ (345) | \$ (253) | \$ (74) | \$ (605) | \$ (558) |
| Income (loss) from continuing operations after income taxes and non-controlling interests | \$ 445 | \$ 686 | \$ 642 | \$ (303) | \$ (345) | \$ (253) | \$ (74) | \$ (638) | \$ (691) |
| Add: | | | | | | | | | |
| Provision for income taxes | 92 | 240 | 226 | 490 | 455 | 438 | 544 | 1,518 | 1,521 |
| Other expense (income), net | 79 | 91 | 79 | (7) | 23 | (150) | (486) | (435) | (453) |
| Interest expense | 345 | 349 | 378 | 389 | 401 | 495 | 496 | 526 | 552 |
| Restructuring and other charges | 498 | 14 | 9 | 67 | 88 | 99 | 165 | 240 | 224 |
| Impairment of goodwill | — | — | — | 719 | 719 | 719 | 719 | — | — |
| Provision for depreciation and amortization | 566 | 571 | 576 | 568 | 567 | 560 | 551 | 543 | 539 |
| Adjusted EBITDA | \$ 2,025 | \$ 1,951 | \$ 1,910 | \$ 1,923 | \$ 1,908 | \$ 1,908 | \$ 1,915 | \$ 1,754 | \$ 1,692 |
| Add: | | | | | | | | | |
| Costs associated with planned separation | \$ 19 | \$ 3 | \$ — | \$ — | \$ — | \$ — | \$ 18 | \$ 94 | \$ 148 |
| Environmental remediation | 25 | — | — | — | — | — | — | — | — |
| Collective bargaining agreement negotiation | 9 | — | — | — | — | — | — | — | — |
| Impairment of energy business assets | 9 | — | — | — | — | — | — | — | — |
| Fasteners plant fire costs | 4 | — | — | — | — | — | — | — | — |
| Proxy, advisory and governance-related costs | — | — | — | — | — | 42 | 58 | 58 | 58 |
| Legal and other advisory costs related to Grenfell Tower | 14 | 15 | 18 | 21 | 23 | 19 | 14 | 7 | — |
| Settlements of certain customer claims primarily related to product introductions | — | 38 | 38 | 38 | 38 | — | — | — | — |
| Strategy and portfolio review costs | 13 | 13 | 7 | — | — | — | — | — | — |
| Delaware reincorporation costs | — | — | — | 3 | 3 | 3 | 3 | — | — |
| Adjusted EBITDA excluding Special items | \$ 2,118 | \$ 2,020 | \$ 1,973 | \$ 1,985 | \$ 1,972 | \$ 1,972 | \$ 2,008 | \$ 1,913 | \$ 1,898 |
| Net debt | \$ 4,978 | \$ 5,015 | \$ 4,053 | \$ 4,822 | \$ 4,902 | \$ 5,149 | \$ 4,694 | \$ 5,042 | \$ 5,059 |
| Net debt to Adjusted EBITDA excluding Special items | 2.35 | 2.48 | 2.05 | 2.43 | 2.49 | 2.61 | 2.34 | 2.64 | 2.67 |

Arconic's definition of Adjusted EBITDA (Earnings before interest, taxes, depreciation, and amortization) is net margin plus an add-back for depreciation and amortization. Net margin is equivalent to Sales minus the following items: Cost of goods sold; Selling, general administrative, and other expenses; Research and development expenses; and Provision for depreciation and amortization. Management believes that this measure is meaningful to investors because it provides additional information with respect to Arconic's operating performance and the Company's ability to meet its financial obligations. The Adjusted EBITDA presented may not be comparable to similarly titled measures of other companies.

Net debt is a non-GAAP financial measure. Management believes that this measure is meaningful to investors because management assesses Arconic's leverage position after factoring in available cash that could be used to repay outstanding debt.

Reconciliation of Return on Net Assets (RONA)

| (\$ in millions) | Quarter ended June 30, | | Quarter ended March 31, | | Six months ended June 30, | |
|--|---------------------------|----------------------|----------------------------|-----------------------|------------------------------|----------------------|
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Net (loss) income | \$(121) | \$120 | \$187 | \$143 | \$66 | \$263 |
| Special items ⁽¹⁾ | 390 | 65 | 21 | 26 | 411 | 91 |
| Net income excluding Special items | \$269 | \$185 | \$208 | \$169 | \$477 | \$354 |
| Annualized net income excluding Special items | \$1,076 | \$740 | \$832 | \$676 | \$954 | \$708 |
| Net Assets: | June 30, 2019 | June 30, 2018 | March 31, 2019 | March 31, 2018 | June 30, 2019 | June 30, 2018 |
| Add: Receivables from customers, less allowances | \$1,155 | \$1,159 | \$1,170 | \$1,179 | \$1,155 | \$1,159 |
| Add: Deferred purchase program ⁽²⁾ | 426 | 313 | 430 | 320 | 426 | 313 |
| Add: Inventories | 2,606 | 2,659 | 2,612 | 2,648 | 2,606 | 2,659 |
| Less: Accounts payable, trade | 2,095 | 2,024 | 2,193 | 1,874 | 2,095 | 2,024 |
| Working capital | 2,092 | 2,107 | 2,019 | 2,273 | 2,092 | 2,107 |
| Properties, plants, and equipment, net (PP&E) | 5,517 | 5,582 | 5,727 | 5,628 | 5,517 | 5,582 |
| Net assets - total | \$7,609 | \$7,689 | \$7,746 | \$7,901 | \$7,609 | \$7,689 |
| RONA | 14.1% | 9.6% | 10.7% | 8.6% | 12.5% | 9.2% |

RONA is a non-GAAP financial measure. RONA is calculated as Net income excluding Special items divided by working capital and net PP&E. Management believes that this measure is meaningful to investors as RONA helps management and investors determine the percentage of net income the company is generating from its assets. This ratio tells how effectively and efficiently the company is using its assets to generate earnings.

(1) See Reconciliation of Net income excluding Special items for a description of Special items.

(2) The Deferred purchase program relates to an arrangement to sell certain customer receivables to several financial institutions on a recurring basis. Arconic is adding back the receivable for the purposes of the Working capital calculation.

Reconciliation of Days Working Capital

| (\$ in millions) | Quarter ended June 30, | |
|---|---------------------------|----------|
| | 2019 | 2018 |
| Receivables from customers, less allowances | \$ 1,155 | \$ 1,159 |
| Add: Deferred purchase program ⁽¹⁾ | 426 | 313 |
| Add: Inventories | 2,606 | 2,659 |
| Less: Accounts payable, trade | 2,095 | 2,024 |
| Working capital | \$ 2,092 | \$ 2,107 |
| Sales | \$ 3,691 | \$ 3,573 |
| Days Working Capital | 52 | 54 |

Days Working Capital is a non-GAAP financial measure and is calculated as Working Capital / (Sales / number of days in quarter). Management believes that this measure is meaningful to investors because Days Working Capital reflects the capital tied up during a given quarter.

⁽¹⁾ The Deferred purchase program relates to an arrangement to sell certain customer receivables to several financial institutions on a recurring basis. Arconic is adding back the receivable for the purposes of the Working capital calculation.

Reconciliation of Corporate Expense Excluding Special Items

| (\$ in millions) | 1Q18 | 2Q18 | 3Q18 | 4Q18 | 2018 | 1Q19 | 2Q19 |
|---|------|------|------|------|-------|------|-------|
| Corporate expense | \$60 | \$93 | \$46 | \$48 | \$247 | \$61 | \$120 |
| Special items: | | | | | | | |
| Costs associated with planned separation | — | — | — | — | — | 3 | 16 |
| Legal and other advisory costs related to Grenfell Tower | 5 | 4 | 5 | 4 | 18 | 2 | 3 |
| Strategy and portfolio review costs | — | — | — | 7 | 7 | 6 | — |
| Fasteners plant fire costs | — | — | — | — | — | — | 4 |
| Collective bargaining agreement negotiation | — | — | — | — | — | — | 9 |
| Impairment of energy business assets | — | — | — | — | — | — | 9 |
| Environmental remediation | — | — | — | — | — | — | 25 |
| Settlements of certain customer claims primarily related to product introductions | — | 38 | — | — | 38 | — | — |
| Corporate expense excluding Special items | \$55 | \$51 | \$41 | \$37 | \$184 | \$50 | \$54 |

Corporate expense excluding Special items is a non-GAAP financial measure. Management believes that this measure is meaningful to investors because management reviews the operating results of Arconic excluding the impacts of Special items. There can be no assurances that additional Special items will not occur in future periods. To compensate for this limitation, management believes that it is appropriate to consider both Corporate expense determined under GAAP as well as Corporate expense excluding Special items.

Reconciliation of Engineered Products and Solutions Aerospace Engines and Aerospace Defense Organic Revenue

Reconciliation of Engineered Products and Solutions (EPS) Aerospace Engines Organic Revenue

| (\$ in millions) | 2Q19 | 2Q18 |
|--|-------|-------|
| EP&S Aerospace Engines Revenue | \$616 | \$565 |
| Foreign currency impact | (4) | n/a |
| EP&S Aerospace Engines Organic Revenue | \$620 | \$565 |

EP&S Aerospace Engines organic revenue is a non-GAAP financial measure. Management believes this measure is meaningful to investors as it presents EP&S Aerospace Engines on a comparable basis for all periods presented due to the impact of foreign currency fluctuations relative to the prior year period.

Reconciliation of EP&S Aerospace Defense Organic Revenue

| (\$ in millions) | 2Q19 | 2Q18 |
|--|-------|-------|
| EP&S Aerospace Defense Revenue | \$221 | \$176 |
| Foreign currency impact | (1) | n/a |
| EP&S Aerospace Defense Organic Revenue | \$222 | \$176 |

EP&S Aerospace Defense organic revenue is a non-GAAP financial measure. Management believes this measure is meaningful to investors as it presents EP&S Aerospace Defense revenue on a comparable basis for all periods presented due to the impact of foreign currency fluctuations relative to the prior year period.

Reconciliation of Global Rolled Products Commercial Airframe and Industrial Organic Revenue

Reconciliation of Global Rolled Products (GRP) Commercial Airframe Organic Revenue

| (\$ in millions) | 2Q19 | 2Q18 |
|---|-------|-------|
| GRP Commercial Airframe Revenue | \$312 | \$263 |
| Aluminum price impact | (3) | n/a |
| Foreign currency impact | 1 | n/a |
| GRP Commercial Airframe Organic Revenue | \$314 | \$263 |

GRP commercial airframe organic revenue is a non-GAAP financial measure. Management believes this measure is meaningful to investors as it presents GRP commercial airframe revenue on a comparable basis for all periods presented due to the impact of changes in aluminum prices and foreign currency fluctuations relative to the prior year period.

Reconciliation of GRP Industrial Organic Revenue

| (\$ in millions) | 2Q19 | 2Q18 |
|--------------------------------|-------|-------|
| GRP Industrial Revenue | \$308 | \$292 |
| Aluminum price impact | (24) | n/a |
| Foreign currency impact | (2) | n/a |
| GRP Industrial Organic Revenue | \$334 | \$292 |

GRP industrial organic revenue is a non-GAAP financial measure. Management believes this measure is meaningful to investors as it presents GRP industrial revenue on a comparable basis for all periods presented due to the impact of changes in aluminum prices and foreign currency fluctuations relative to the prior year period.

Reconciliation of Global Rolled Products Automotive and Commercial Transportation Organic Revenue

Reconciliation of GRP Automotive Organic Revenue

| (\$ in millions) | 2Q19 | 2Q18 |
|-------------------------------|-------|-------|
| GRP Automotive Revenue | \$487 | \$496 |
| Aluminum price impact | (32) | n/a |
| Foreign currency impact | (2) | n/a |
| GRP Packaging Organic Revenue | \$521 | \$496 |

GRP automotive organic revenue is a non-GAAP financial measure. Management believes this measure is meaningful to investors as it presents GRP automotive revenue on a comparable basis for all periods presented due to the impact of changes in aluminum prices and foreign currency fluctuations relative to the prior year period.

Reconciliation of GRP Commercial Transportation Organic Revenue

| (\$ in millions) | 2Q19 | 2Q18 |
|---|-------|-------|
| GRP Commercial Transportation Revenue | \$145 | \$142 |
| Aluminum price impact | (9) | n/a |
| Foreign currency impact | (2) | n/a |
| GRP Commercial Transportation Organic Revenue | \$156 | \$142 |

GRP commercial transportation organic revenue is a non-GAAP financial measure. Management believes this measure is meaningful to investors as it presents GRP commercial transportation revenue on a comparable basis for all periods presented due to the impact of changes in aluminum prices and foreign currency fluctuations relative to the prior year period.

Reconciliation of Transportation and Construction Solutions Commercial Transportation and Building and Construction Organic Revenue

Reconciliation of Transportation and Construction Solutions (TCS) Commercial Transportation Organic Revenue

| (\$ in millions) | 2Q19 | 2Q18 |
|---|-------|-------|
| TCS Commercial Transportation Revenue | \$257 | \$252 |
| Aluminum price impact | (9) | n/a |
| Foreign currency impact | (7) | n/a |
| TCS Commercial Transportation Organic Revenue | \$273 | \$252 |

TCS commercial transportation organic revenue is a non-GAAP financial measure. Management believes this measure is meaningful to investors as it presents TCS commercial transportation on a comparable basis for all periods presented due to the impact of changes in aluminum prices and foreign currency fluctuations relative to the prior year period.

Reconciliation of TCS Building and Construction Organic Revenue

| (\$ in millions) | 2Q19 | 2Q18 |
|---|-------|-------|
| TCS Building and Construction Revenue | \$291 | \$297 |
| Aluminum price impact | (11) | n/a |
| Foreign currency impact | (6) | n/a |
| TCS Building and Construction Organic Revenue | \$308 | \$297 |

TCS Building and Construction organic revenue is a non-GAAP financial measure. Management believes this measure is meaningful to investors as it presents TCS Building and Construction revenue on a comparable basis for all periods presented due to the impact of changes in aluminum prices and foreign currency fluctuations relative to the prior year period.

Reconciliation of Arconic End Markets Organic Revenue

| (\$ in millions) | Aero Engine | Aero Airframe | Aero Defense | Commerical Transportation | Packaging | Automotive | Building and Construction | Industrial and Other |
|-----------------------------|-------------|---------------|--------------|---------------------------|-----------|------------|---------------------------|----------------------|
| 2019 | | | | | | | | |
| Revenue | \$618 | \$758 | \$236 | \$469 | \$241 | \$505 | \$345 | \$519 |
| Aluminum price impact | — | (3) | — | (18) | (23) | (32) | (13) | (47) |
| Foreign currency impact | (4) | (1) | (2) | (8) | (5) | (2) | (6) | (7) |
| Organic Revenue | \$622 | \$762 | \$238 | \$495 | \$269 | \$539 | \$364 | \$573 |
| 2018 | | | | | | | | |
| Revenue | \$567 | \$710 | \$191 | \$473 | \$268 | \$511 | \$357 | \$496 |
| Sales – Eger forgings | — | — | — | 9 | — | — | — | — |
| Sales – Tennessee packaging | — | — | — | — | 46 | — | — | — |
| Organic Revenue | \$567 | \$710 | \$191 | \$464 | \$222 | \$511 | \$357 | \$496 |

Arconic end markets organic revenue is a non-GAAP financial measure. Management believes this measure is meaningful to investors as it presents Arconic end markets revenue on a comparable basis for all periods presented due to the impact of the ramp-down of Arconic's North American packaging business at its Tennessee operations (completed in December 2018), the sale of the forgings business in Eger, Hungary (divested in December 2018), and the impact of changes in aluminum prices and foreign currency fluctuations relative to the prior year periods.