

One Suggestion for promoting Green Steel Usage

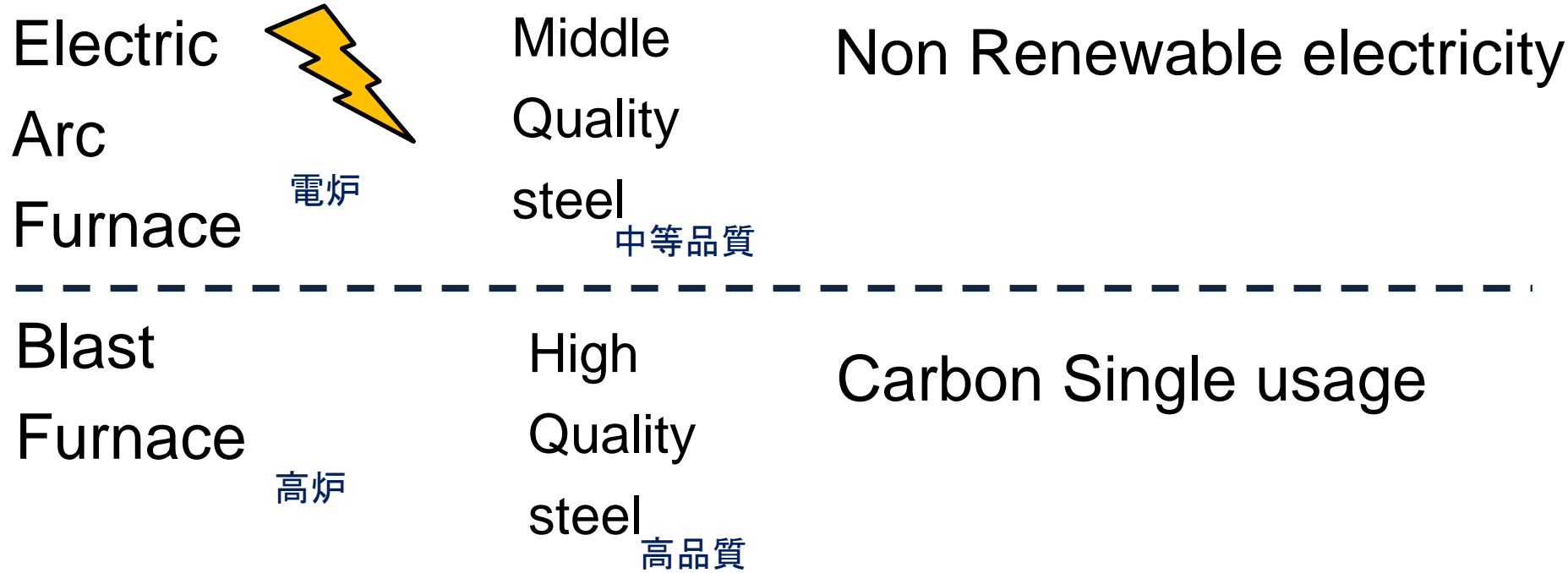
提案：グリーン鉄鋼利用の促進戦略

A photograph of a steel mill. The image shows several large industrial buildings with blue and white striped roofs. Thick white smoke or steam is rising from the buildings, partially obscuring the sky. In the background, there are tall, dark structures, possibly part of the steel-making process. The overall scene is industrial and somewhat hazy.

鉄鋼 2 班 (te2)

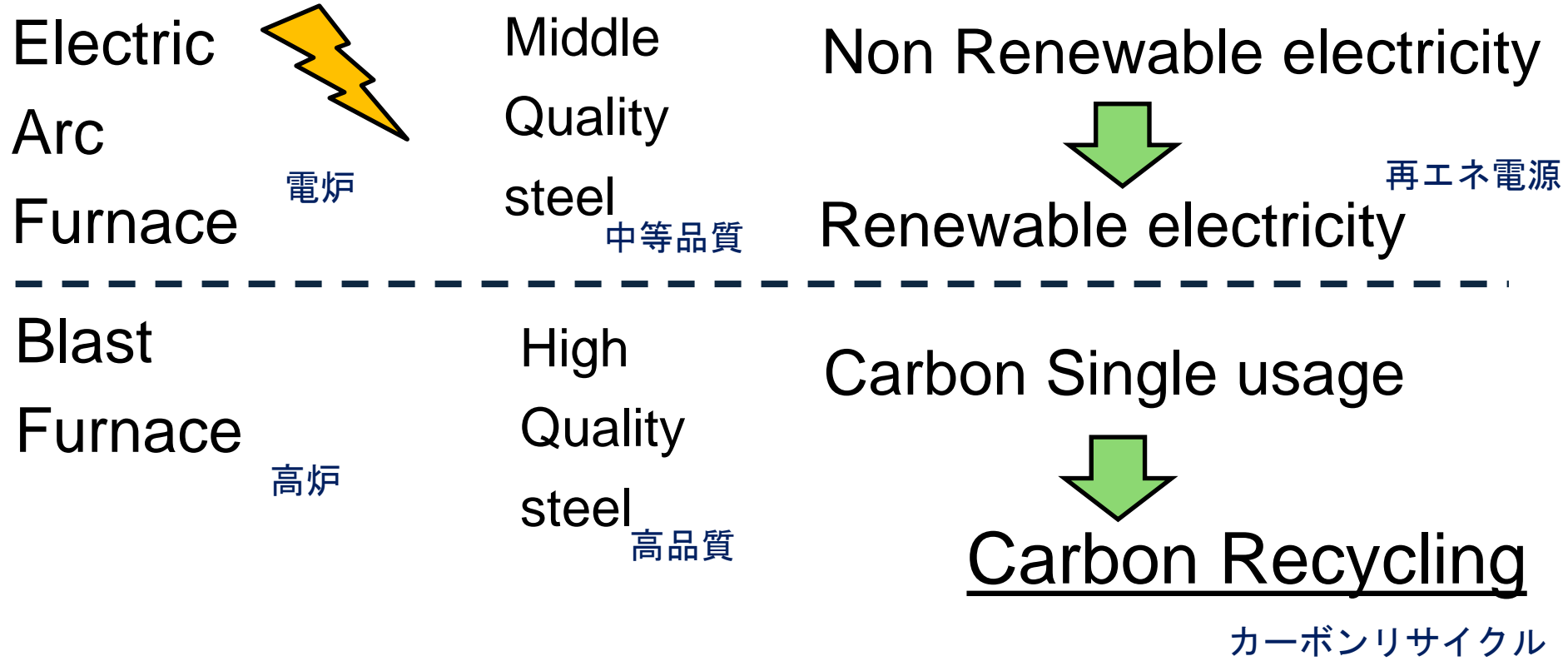
Less-carbon-emission steel in demand

炭素排出量削減の要請



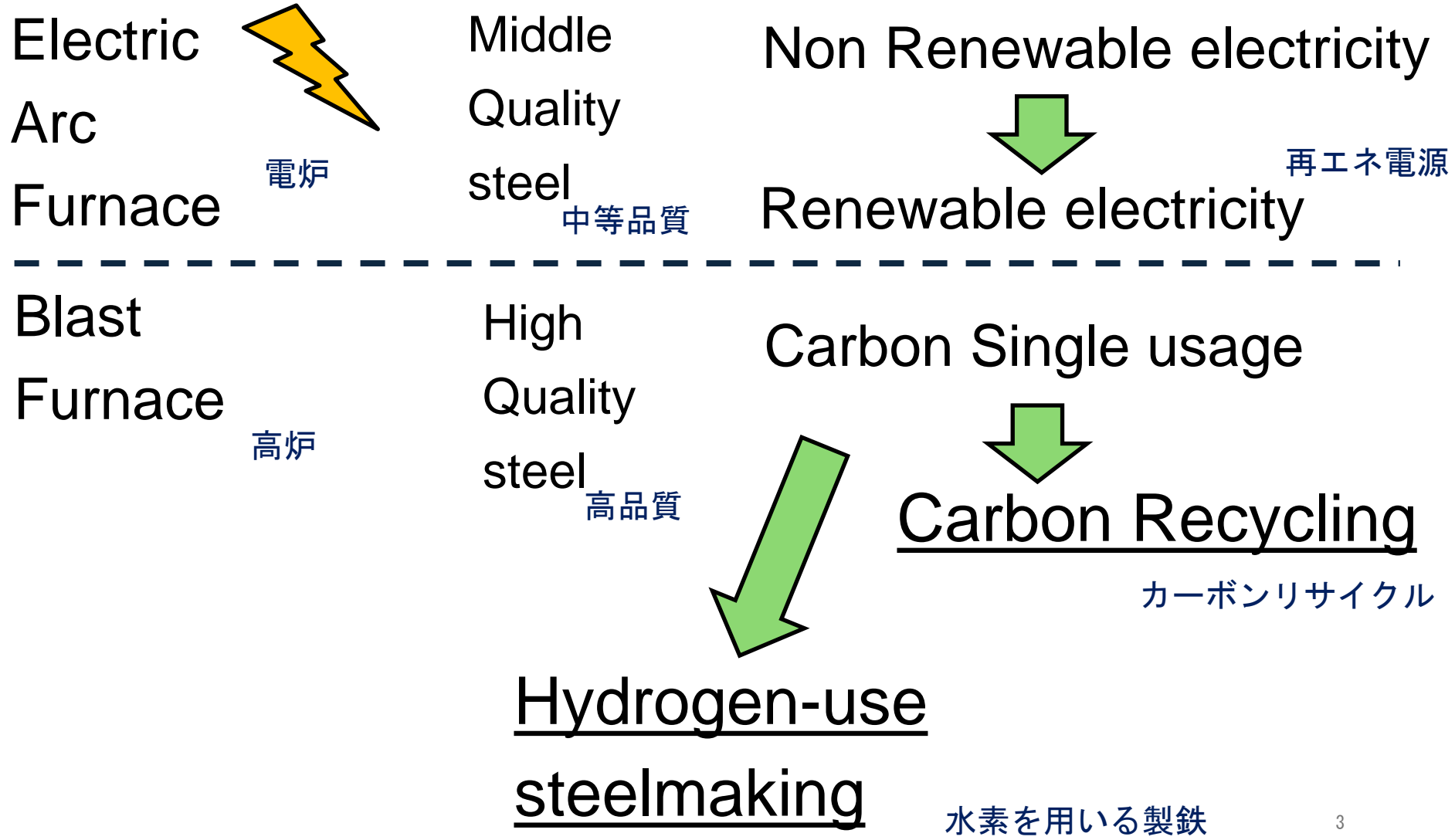
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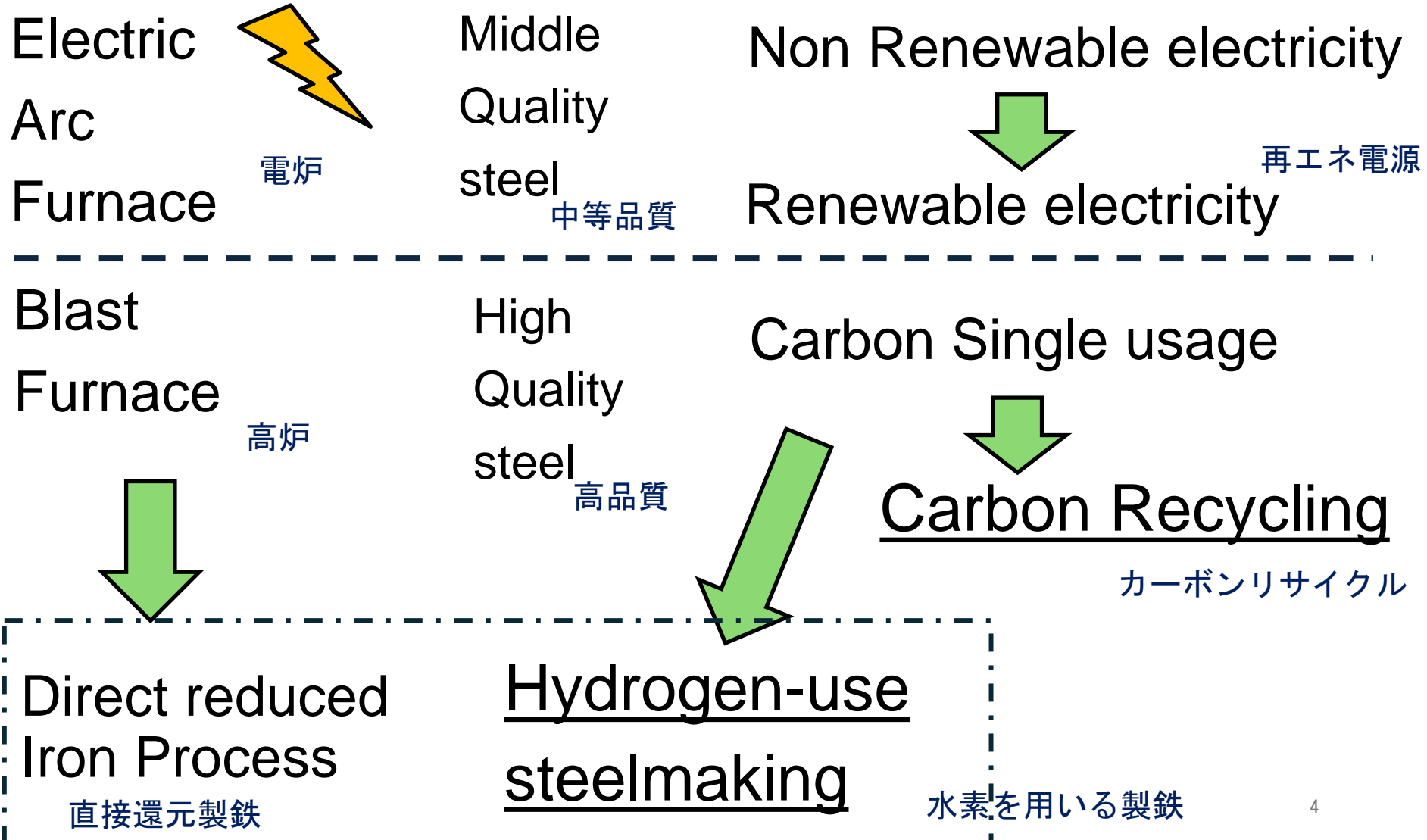
Less-carbon-emission steel in demand

炭素排出量削減の要請



Less-carbon-emission steel in demand

炭素排出量削減の要請



30% Higher Costs

1.3倍のコスト

Installing new method 新方式の導入

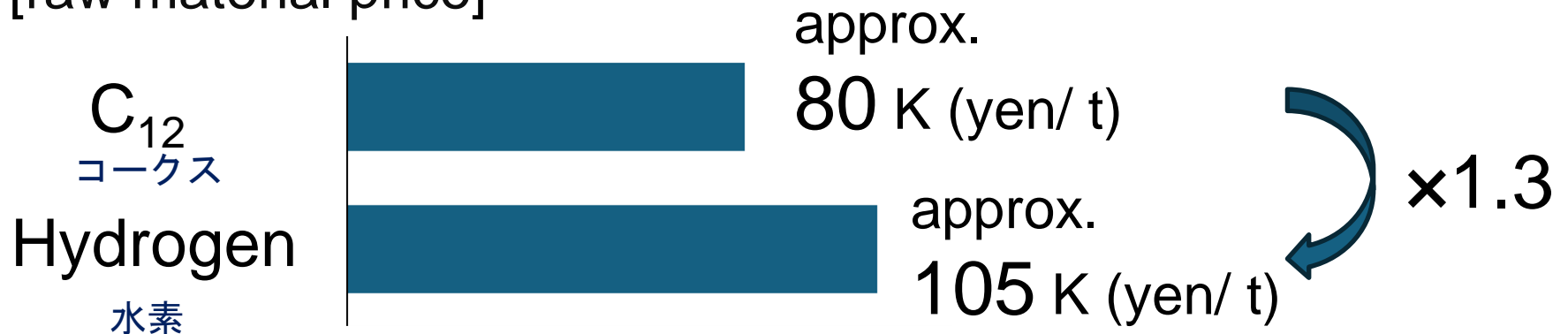
... raw materials cost change + cost for installation

原料価格の変化+設備投資

In steelmaking with Hydrogen...

[raw material price]

Reference Nikkei Jan 15th 2021



At least 30 % increase + cost for installation...

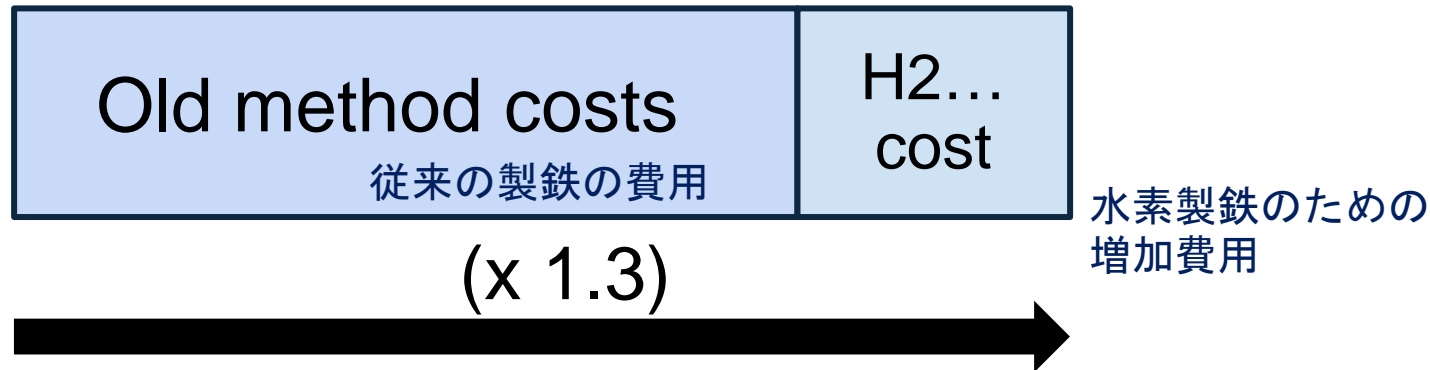
製鉄プロセスでの30%コスト増+設備投資

The Necessity of Additional Value 付加価値

Higher price, the same quality

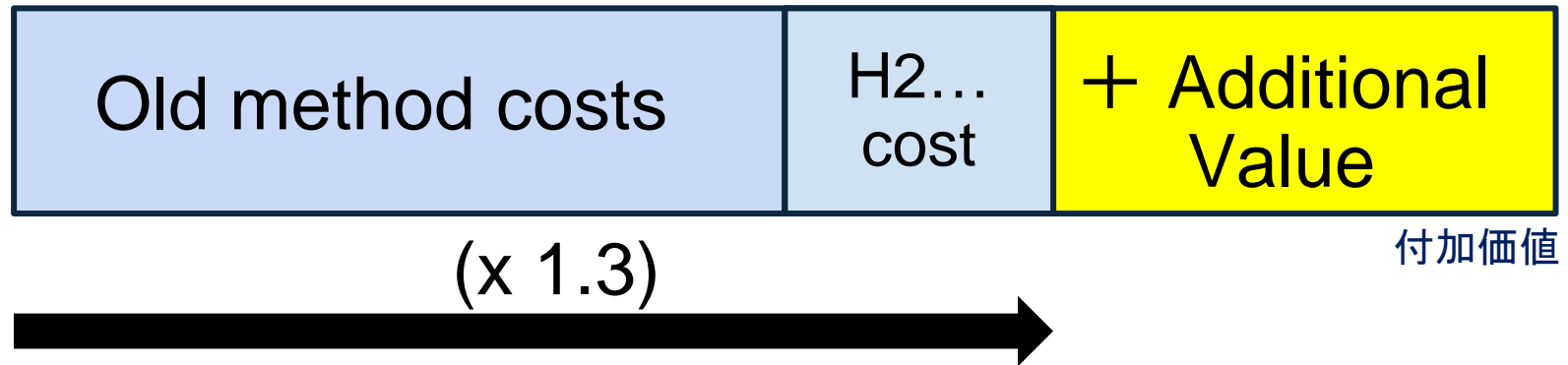
=> More likely to LOSE

同品質の製品を高値で売ると
競争に勝てない



The Necessity of Additional Value

Higher price, Higher Higher quality 値上げ分以上に
高い価値を提供すればよい
=> Likely to WIN when needs exist



Best For Consumers 買い手にとっては安価
Cheaper in Total

Best For Manufacturer
More Profit

How to satisfy both?

売り手にとっては収益

Supply more valuable products

Processing increases value

加工すると価値が上がる=付加価値

Material

材料

Parts

部品

Final Products

最終製品

For example... about cars

Steel

鉄鋼

Bearing

Bolt

ベアリング、ボルト

Car

車

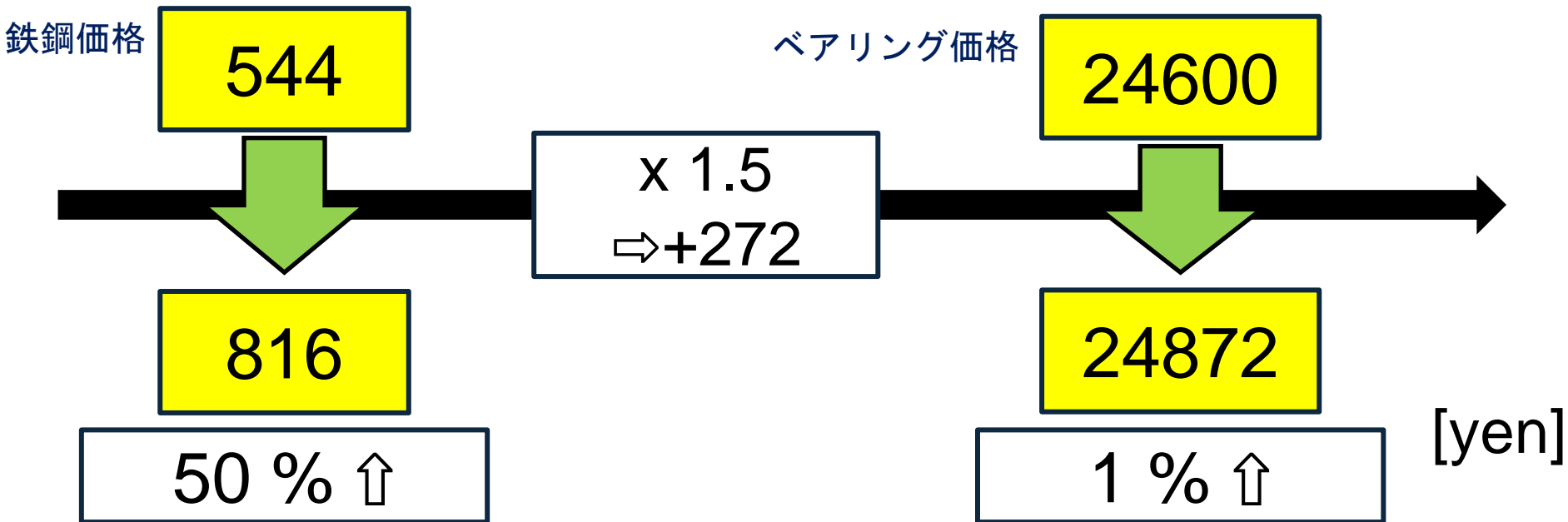
Impact reducing Scheme @ Parts

部品に加工して原価上昇の影響を縮小する

E.g. 100 bearings

⇒ 3.2 kg steel used

Price of steel = 170 K (yen / t) Nikkei (May 7th 2024, 163-168 K)



Impact reducing Scheme @ Car

One 1.6 t car

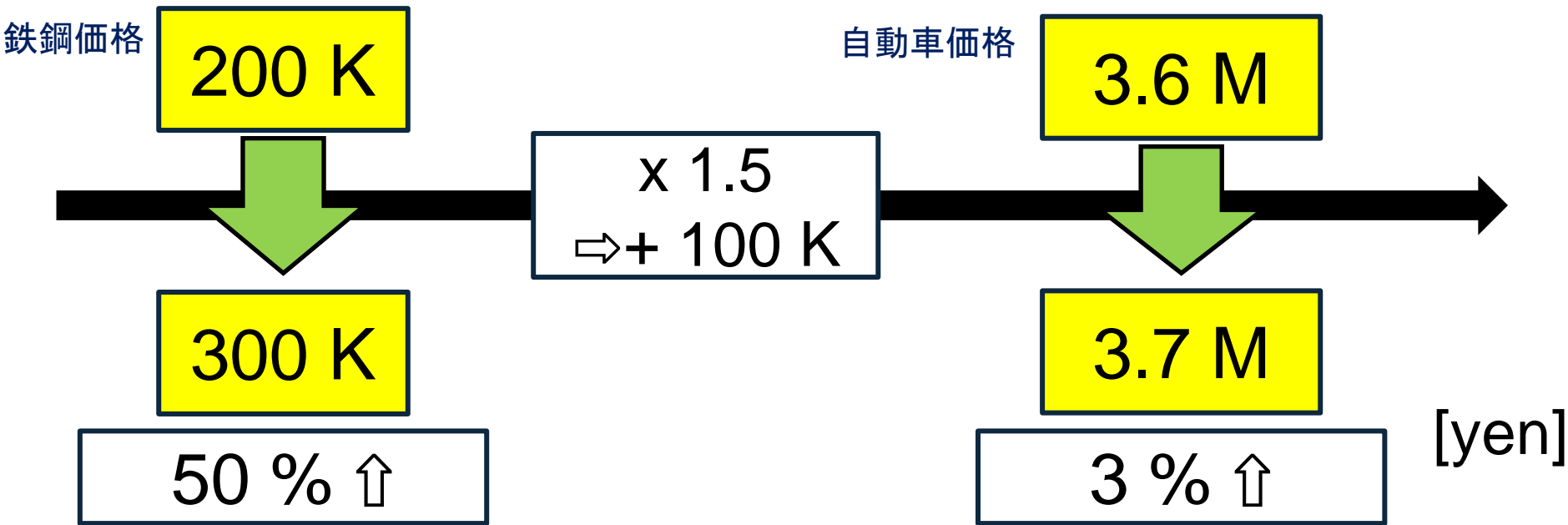
⇒ 1,2 t steel used

<https://messe.nikkei.co.jp/files/EP9834/6-202209261042090254.pdf>



Example of 1.6 t car
<https://www.subaru.jp/levorg/levorg/?=pcgnavi>

Price of steel = 170 K (yen / t) Nikkei (May 7th 2024, 163-168 K)



Impact reduced

Reference
SUBARU

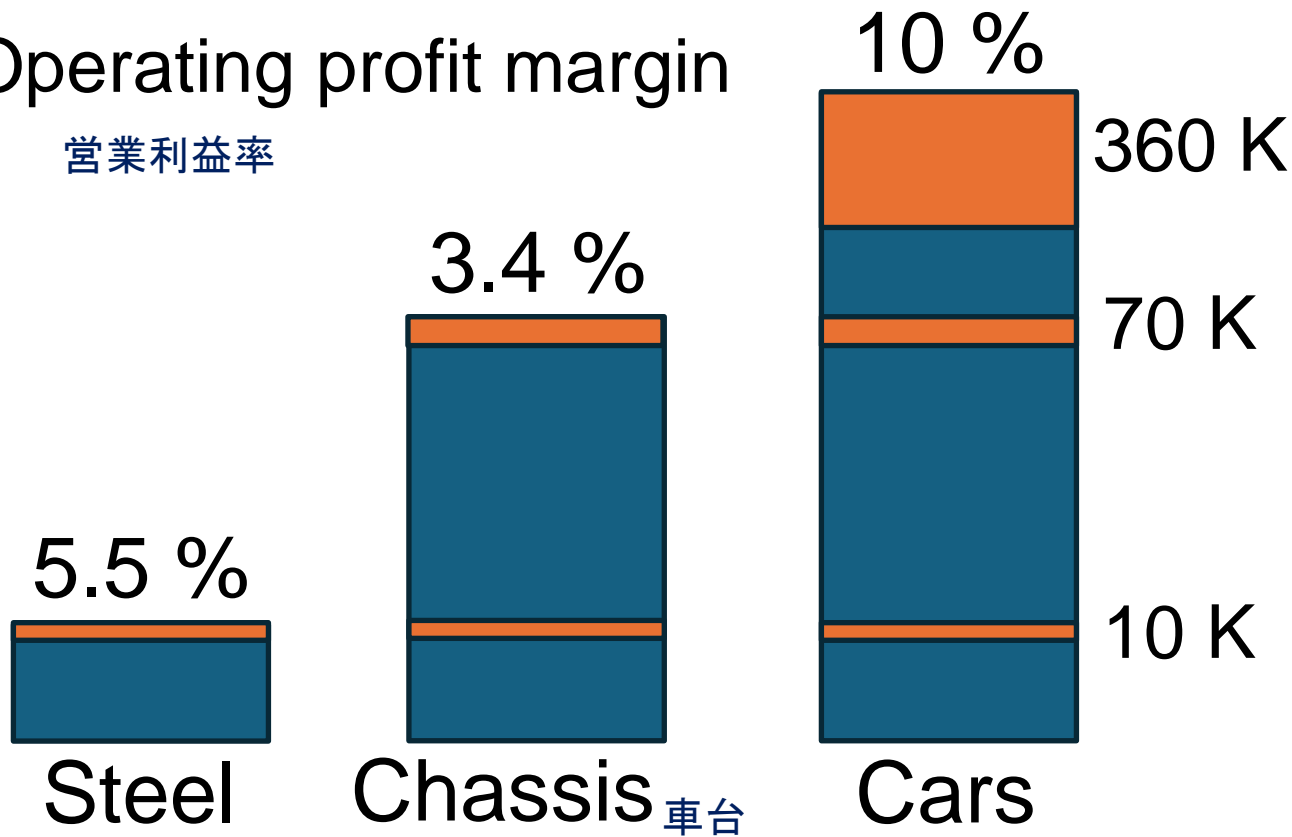
https://members.subaru.jp/estimate_simulation/index.html?carm=levorg&btc=VW0D01&tcode=VN5D5VG&mop=GAC&ext#1U&int=20

Profit Concentration

利益集中

Operating profit margin

営業利益率



When
a 3.6 M yen car

360万円の車の場合

Total profit: 440 K yen

利益総額

(*1) Nextage (https://www.nextage.jp/buy_guide/info/516036/)

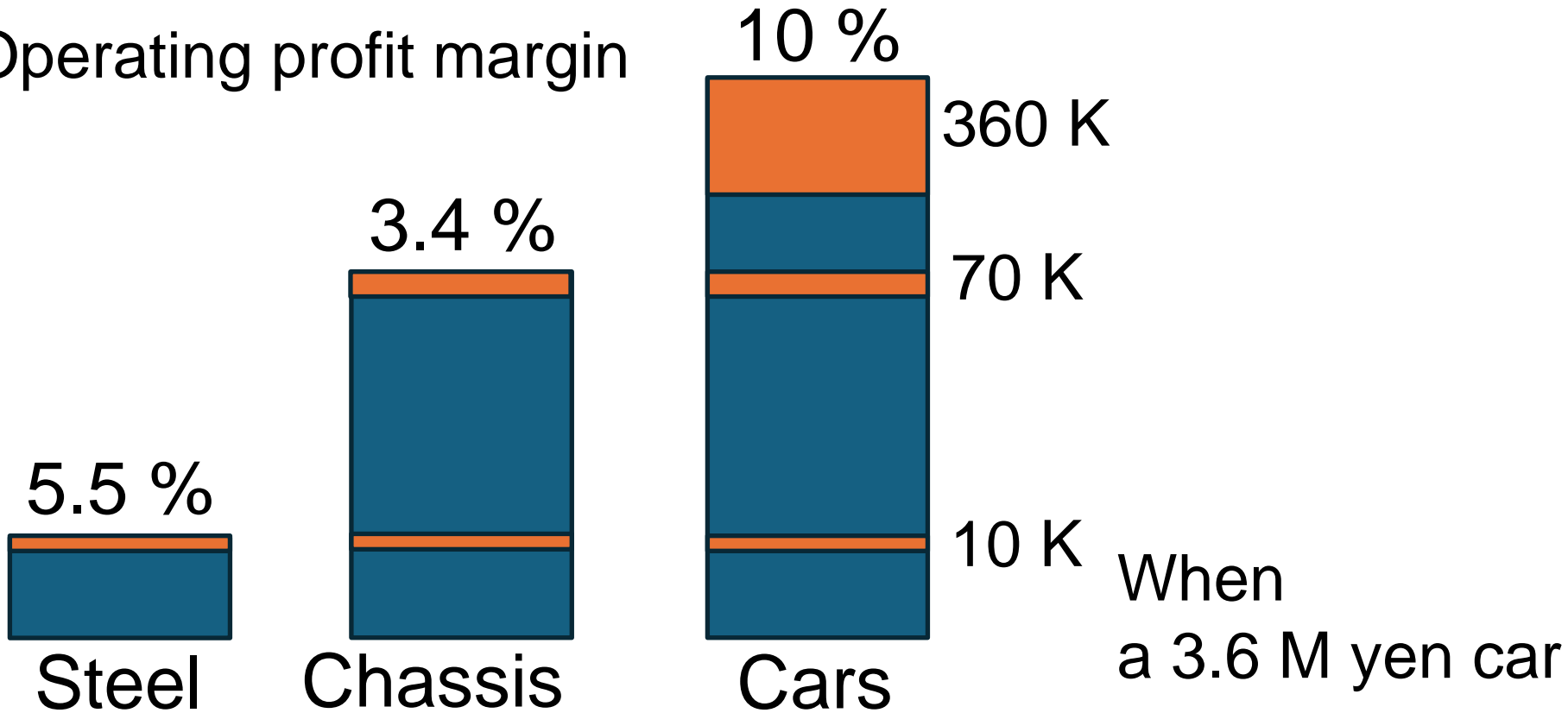
About Profit ratio

<https://www.jfe-holdings.co.jp/investor/zaimu/g-data/jfe/2023/2023-all240507.pdf>

<https://www.ntn.co.jp/japan/investors/pdf/fin/2024q4j.pdf> <https://www.subaru.co.jp/ir/finance/latest-results.html>

Cost Absorption コスト吸収

Operating profit margin



When a 3.6 M yen car

Total profit: 440 K yen > 100 K (CN costs)

増加利益がCN費用を上回る

(*1) Nextage (https://www.nextage.jp/buy_guide/info/516036/)

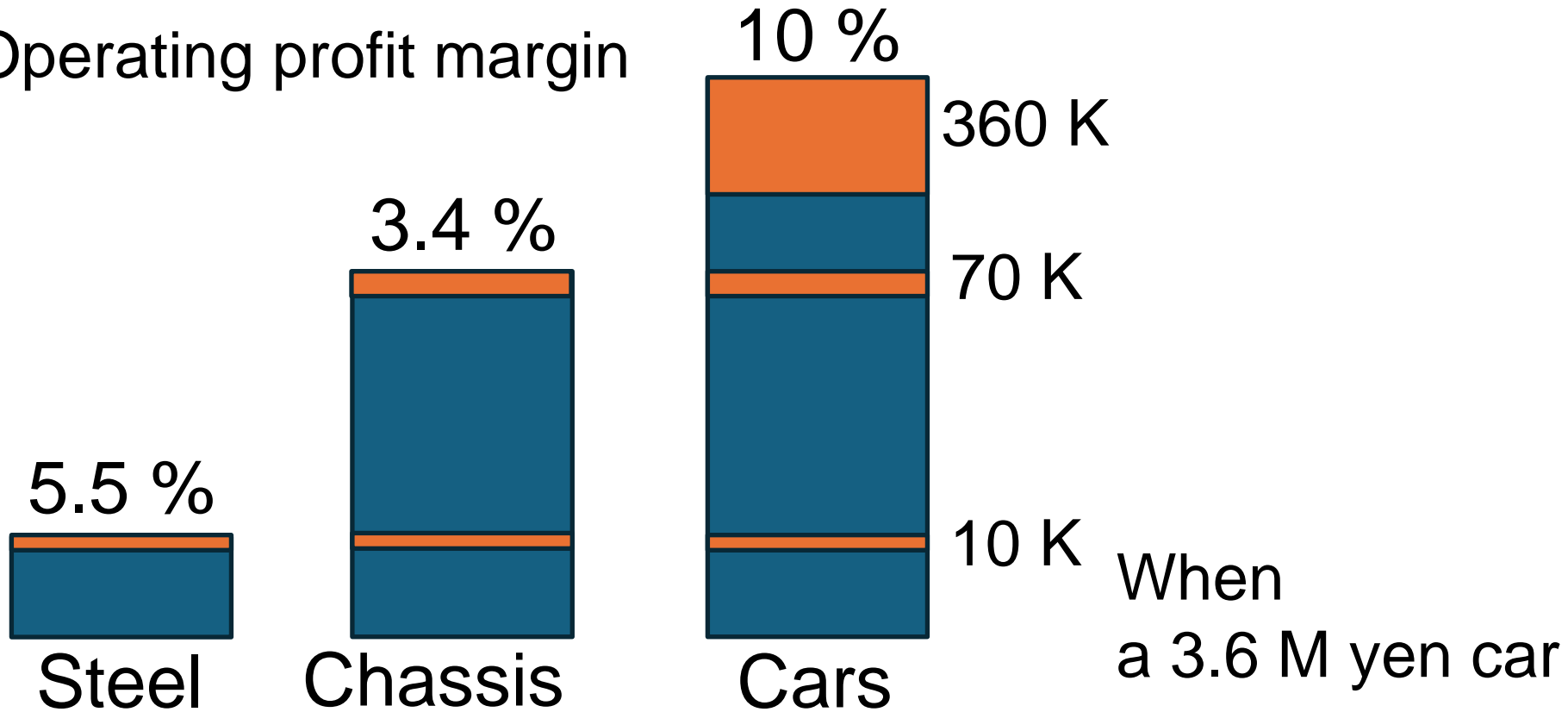
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<https://www.ntn.co.jp/japan/investors/pdf/fin/2024q4j.pdf> <https://www.subaru.co.jp/ir/finance/latest-results.html>

Profit Increase 増益

Operating profit margin



Total profit: 440 K yen > 100 K (CN costs)

=> Profit 340 K yen (>10 K) Profit Gaining

(*1) Nextage (https://www.nextage.jp/buy_guide/info/516036/)

About Profit ratio

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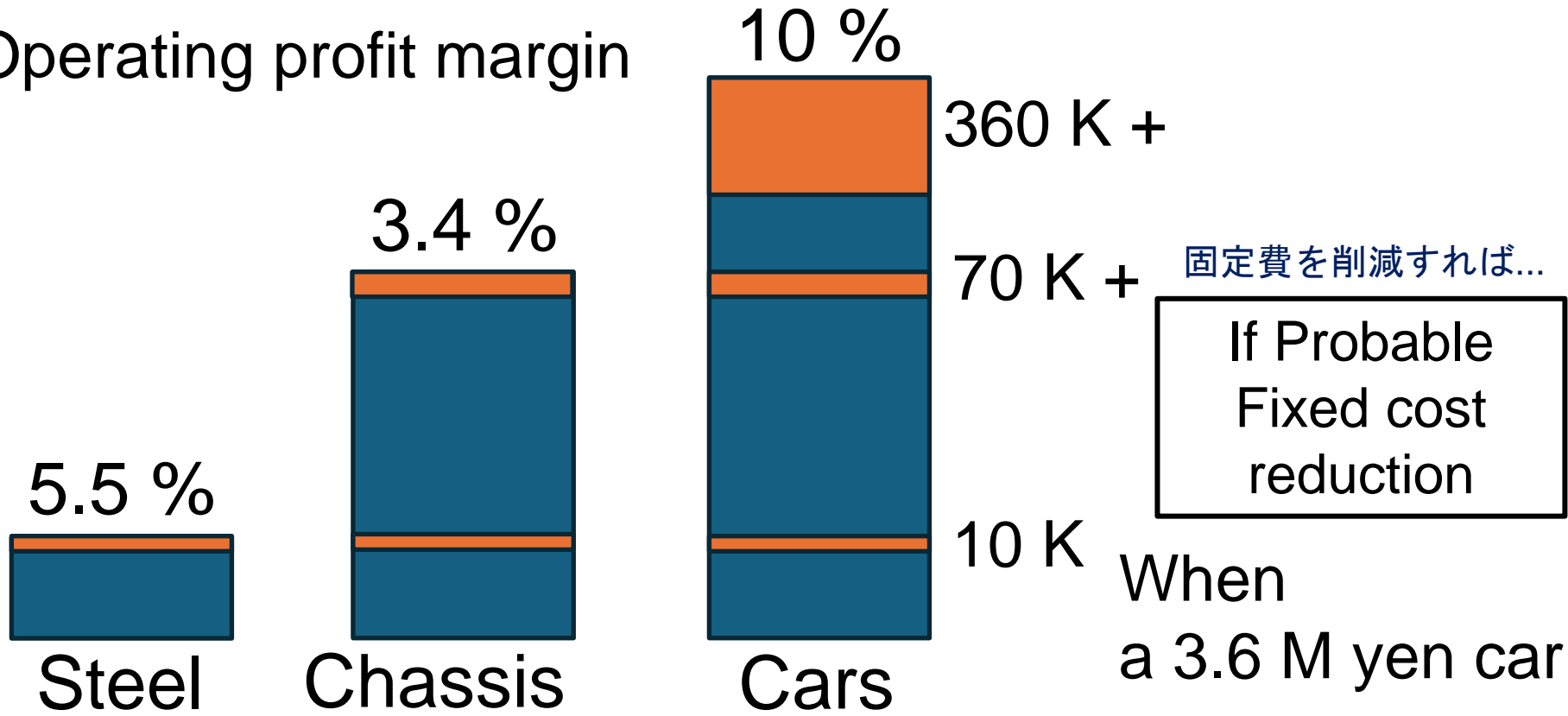
<https://www.ntn.co.jp/japan/investors/pdf/fin/2024q4j.pdf>

<https://www.subaru.co.jp/ir/finance/latest-results.html>

鉄鋼の販売より利益額大

Profit Increase

Operating profit margin



Total profit: 440 K yen > 100 K (CN costs)

=> Profit 340 K + yen (>10 K) Profit Gaining

(*1) Nextage (https://www.nextage.jp/buy_guide/info/516036/)

さらなる利益獲得

About Profit ratio

<https://www.jfe-holdings.co.jp/investor/zaimu/g-data/jfe/2023/2023-all240507.pdf>

<https://www.ntn.co.jp/japan/investors/pdf/fin/2024q4j.pdf> <https://www.subaru.co.jp/ir/finance/latest-results.html>

JFE should buy related industries

R&D from now on is NOT realistic

鉄を使っている企業を買う

→ M&A with related industries

Merits: 1) Utilizing distribution channels

既存販路の活用

2) Reduction in total fixed costs

固定費の削減

For instance,

NTN (bearing major)



market cap.
approx.

170 billion yen

**SUBARU
(car manufacturer)**

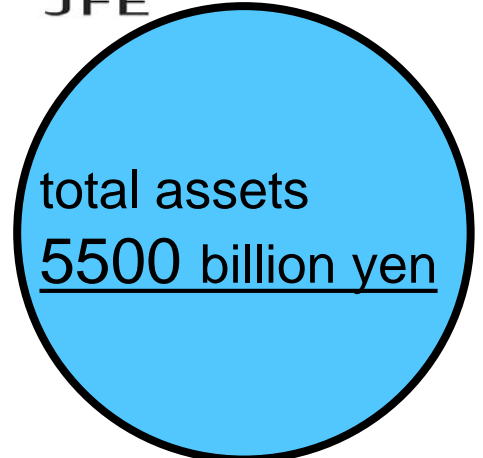


market cap.
approx.

2600 billion yen



JFE HD



total assets
5500 billion yen

https://www.ntn.co.jp/japan/investors/pdf/annual/ntn_report2023.pdf

<https://shikiho.toyokeizai.net/stocks/6472>

https://www.subaru.co.jp/ir/library/pdf/lr/lr2023j.pdf?_2023-11-20

<https://shikiho.toyokeizai.net/stocks/7270>

<https://www.jfe-holdings.co.jp/investor/finance/cashflow/index.html>

(Accessed 2024/05/07)

Social Value

社会的価値

Enabling Japanese steel companies
to profit from green steel

日本の鉄鋼会社が
グリーン鉄鋼で収益を上げることは

plays a key role in building
a carbon-neutral society

CN社会の構築に重要な役割を果たす

Conclusion まとめ

Purchase the steel-related industries
would make the opportunities of 鉄鋼利用産業の買収

- Friendly Steel marketing
 - Reduction of the fixed costs
 - More profit collection
- 市場での影響力拡大
 - 固定費削減
 - 収益増加

to steel companies

& Social Value

まとめ

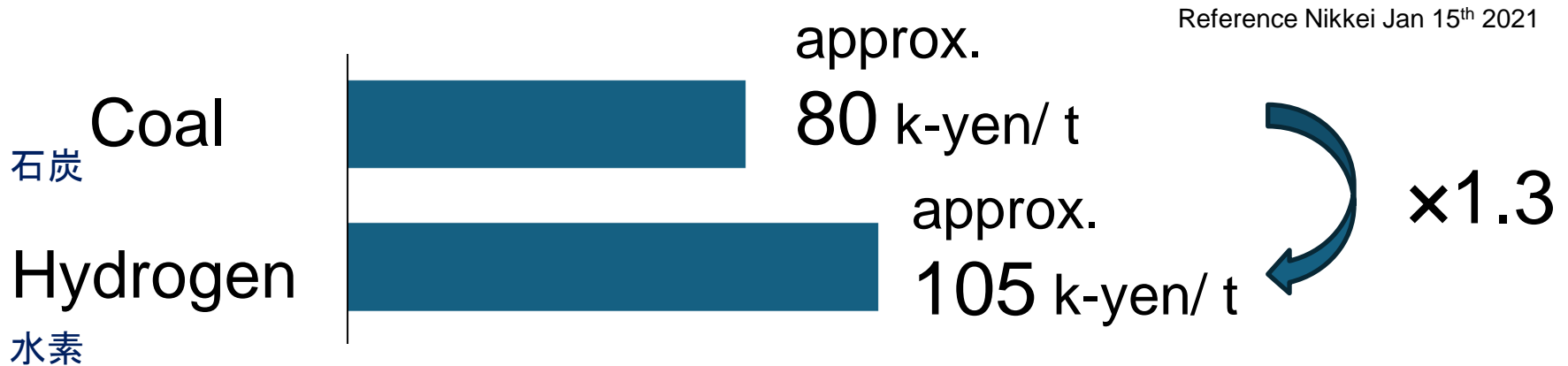
鉄鋼業界の各社は、
他業種の企業を吸収合併する
のが良いのではないか

これによって、
○需要確保
○原価上昇のインパクト低減
○利益額の増加
という効果が得られると予想

1.3 Times Higher Costs

1.3倍のコスト

[raw material price]



At least 30 % increase + cost for install...

製鉄プロセスでの30%コスト増+設備投資

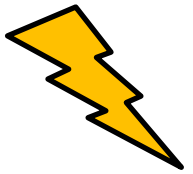
Adding cost directly? Possible?

価格を上乗せして販売できるのか

Less-carbon-emission steel in demand

炭素排出量削減の要請

Electric Arc Furnace



電炉

Middle Quality steel
中等品質

Non Renewable electricity



再エネ電源

Renewable electricity

Blast Furnace

高炉

High Quality steel
高品質

Carbon Single usage



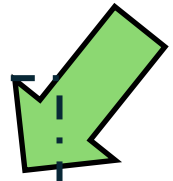
Carbon Recycling

カーボンリサイクル

Direct reduced Iron Process

直接還元製鉄

Hydrogen-use steel making



水素を用いる製鉄²³

Risk factor, Carbon Recycling

Europe is moving towards stricter regulations on products concerning CO₂.

欧州がCO₂に関して製品への規制を厳格化する傾向

Carbon Border Adjustment Mechanism (CBAM) 欧州国境炭素税措置
A mechanism to impose the carbon price and cost applied to EU internal operators on imports from outside the region from 2026 onwards.

水素還元製鉄

Furthermore, hydrogen reduction steelmaking(: HRS) is gaining international attention for CN , so there is a risk that carbon use will be denied in the future.

= hydrogen reduction steelmaking

→ **Ultimately, we should aim for HRS.**

最終的には、水素製鉄を目指すべき

