



サウジアラビアの再生エネルギー 戦略とイスラム金融の状況

2021年10月

サウジアラビアのエネルギー転換戦略 | 大きなチャレンジ

その辿る道のりの風景

- 世界最大級の炭素依存経済の脱・炭素化には、石油依存の低下と石油燃焼の制御が必須であり、大きなチャレンジ
- 石油依存からの転換には、再生エネルギーやガス、特に水素等の巨大プロジェクトへの投資が必要

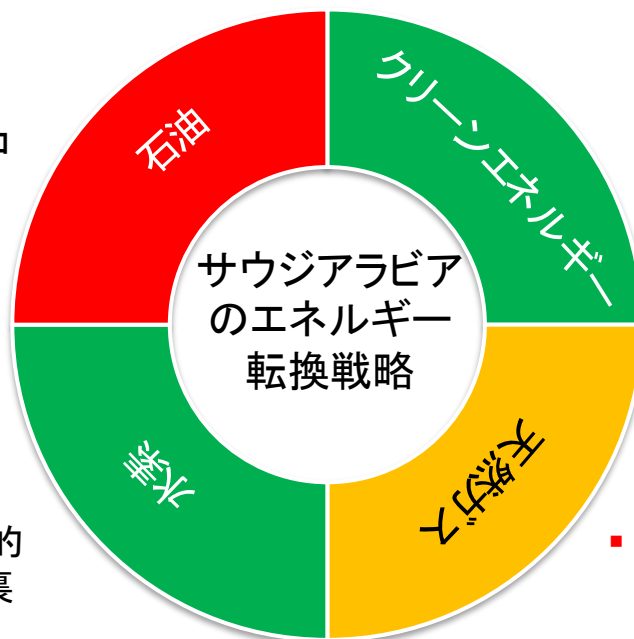
サウジアラビアのエネルギー転換戦略

石油

- 脱炭素インパクト: 低
- サウジの石油は生涯炭素排出量は比較的低い一方、アラムコは生産能力の拡大と精製や石化製品の製造に多角化へ

水素

- 脱炭素インパクト: 高
- パイロット・プロジェクトや野心的な計画の発表はあるものの、裏付けとなる政策は不透明
但し、水素計画の潜在的価値は引続き大きい



クリーンエネルギー

- 脱炭素インパクト: 高
- 目標達成は厳しく、支援政策の透明性向上が必要だが、排出権購入への政府の姿勢は明確

天然ガス

- 脱炭素インパクト: 中
- ガス化による石油燃焼抑制効果が期待出来る一方、ガスへの投資に伴い、クリーンエネルギーへの投資効果が薄まる可能性あり

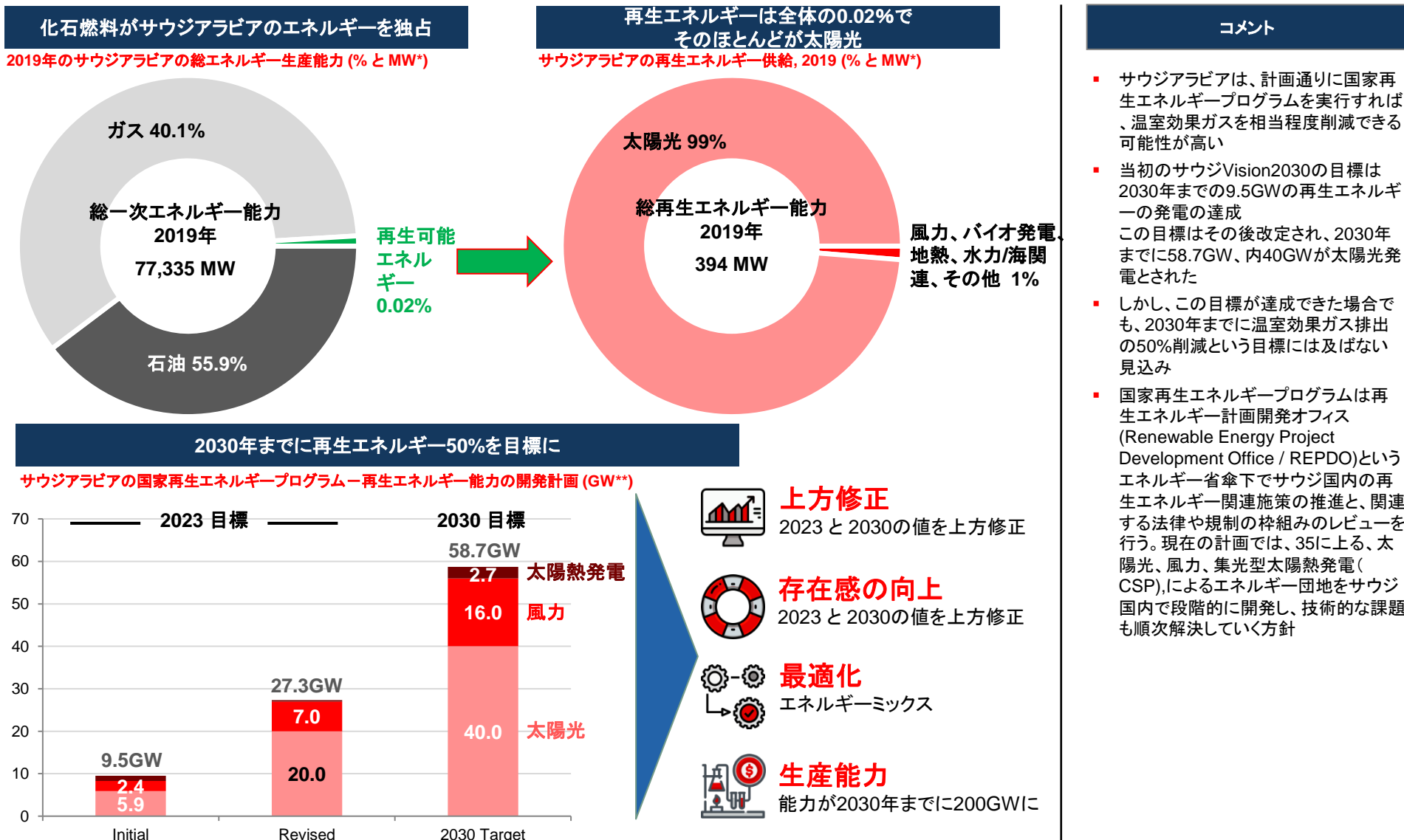
現状では ...

- 1 サウジアラビアは2050年までの炭素ネットゼロ化をコミットはしておらず、代わりに排出権取引を通じた削減による、目標達成を目指している
- 2 サウジアラビアは再生エネルギープログラムをエネルギー省主導で立ち上げ

再エネ目標 | 再生エネルギーの割合を2019年の0.02%から2030年までに50%へ

野心的な目標

- サウジアラビアが国家再生エネルギープログラムを完全に履行すれば、温室効果ガス削減目標の達成が可能
- 当初、サウジビジョン2030では9.5GWの再生エネルギーを2030年までに達成することを目標としていたが、現状これは2030年までに58.7GWに改定されている



サウジアラビアの水素戦略 | 独自の価値の検証

水素の経済価値は未だ商業ベースには未達

- 水素事業を商業ベースに乗せるためには、多くの要素(生産コスト、輸送技術、水資源の調達、資金調達等)について、詰める余地が大きい
- 水素の採用への更なるハードル (1)大規模投資が必要、(2)配送網、貯蔵設備の構築が必要

サウジアラビアの水素の独自価値

1 生産コスト



- 水素の生産コストは、再エネ電力、電気分解コスト等のいくつかの要件に依存している。後者は特にグリーン水素の主要な生産プロセス上の重要な要件
- 再エネ電力や電気分解コストは低下見込みで、特に再エネ資源の見込めるサウジアラビア等は、2050年までには、2020年の国際的な生産価格(2.5-4.5ドル/kg)に対し、競争力のある価格で生産が可能(0.84ドル/kg)となる見込み。
- このようなコスト削減は、将来的な水素の海外輸出への道を開く可能性が高い

2 輸送技術



- サウジ製の水素は船船で輸送される必要があるが、そうした水素輸送用の船舶や関連技術の開発は現在進んでいる
- 水素をアンモニアに変換して船積みする方法が、最も成熟され、コストも低い船積み手法と思われる(到着時にアンモニアから再度水素を取り出すかどうかは、輸出先で肥料や発電所での混合燃料としてアンモニアのまま使用する場合などは不要になる)
- ヨーロッパ、特にドイツは水素の海外からの輸入を計画しているが、サウジアラビアは、より地理的に近いスペインやモロッコ等の競合国に対し、より価格競争力のある輸送手段の確立が必要になる

3 水資源



- 水資源へのアクセスは水素製造に於いて重要な要素の一つだが、これはサウジアラビアを含む多くの国にとってチャレンジでもある
- 海水の電気分解でも採算が取れる見通しが付けば良いが、それまではサウジアラビアは淡水化能力の拡大を図る必要がある
- 逆浸透膜で淡水化した場合、1立方メートル当たりUSD 0.7 - 2.5ドルのコストアップと、3 - 4 kWhの追加電力が必要となる
- ただし、これが電気分解の総コストに与える影響は水素1 kg あたり0.02ドルに止まる

4 資金調達



- Helios Green Fuels プロジェクトの予算50億ドルは、ACWA Power、Air Products、PIF が出資する予定であるが、この内PIFがどのように資金調達をするかは未詳。しかし、投資家の再エネ向け投資意欲は旺盛であることを踏まえれば、PIFにとって市場からの資金調達につずくのか、手許資金を充当するか、選択肢は多い。
- 世界のどこを見ても、こうした水素プロジェクトでは政府がBOTベース(Build-Operate-Transfer)で資金提供をしているケースがほとんどであり、特に英国では顕著。
- 11月のCOP26では、こうした水素プロジェクトの資金調達面についての議論が行われることも想定される

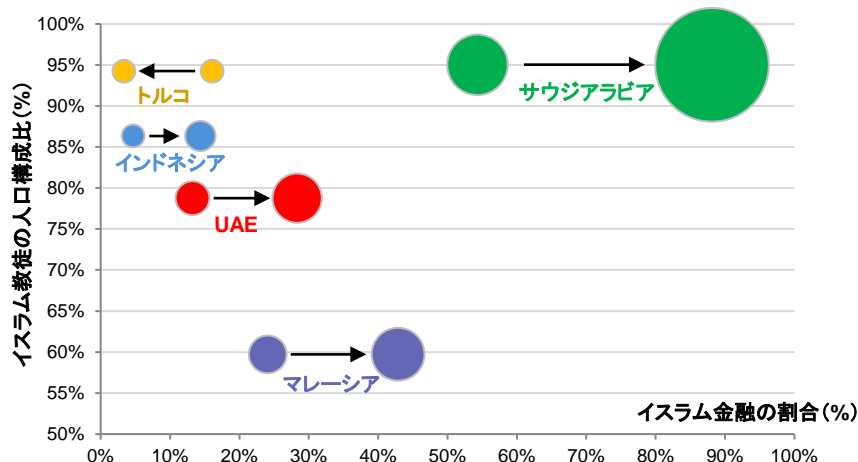
イスラム金融 | イスラム金融の堅調な拡大

サウジアラビアは引き続き世界最大のイスラム金融市場

- 新型コロナの感染拡大に関わらず、シャリア・コンプライアントな資金調達へのシフトは継続。企業は引き続きイスラム金融での資金調達を増やす傾向が続いている。
- 投資家は、より ESG の要素 (Environment, Social, Governance) を重要視しており、増加している政府のスクーク発行は資本市場を活性化させている

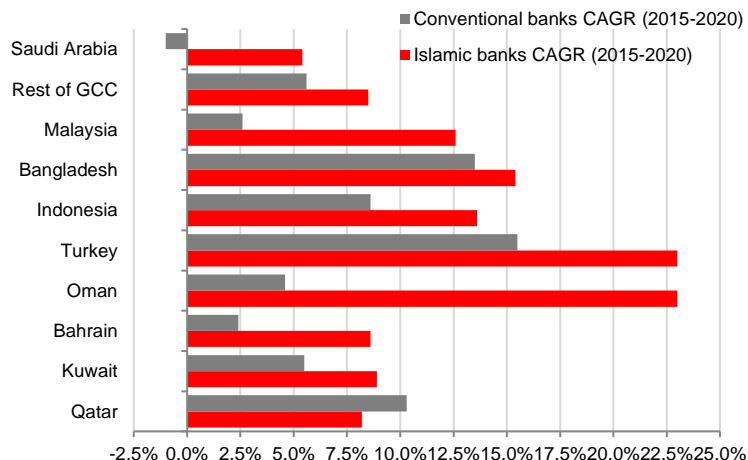
サウジアラビアは引き続き世界最大のイスラム金融市場

資金調達に占めるイスラム金融の割合 (%) とイスラム教徒の人口構成比 (%) の相関



コンベンショナルな貸出を上回るイスラム金融

年間平均増加率 (%) (2015-2020)



イスラム金融の見通しは引き続き堅調

1 スクーク

安定

- 良好な格付の発行者はスクークを活用して、より資本市場にアプローチ
- 政府発行のスクークはプライマリー__ディーラーを通じて増加傾向
- 政府による流動性の供給が減少する中、スクークの発行はこれに拍車を掛ける可能性がある

2 銀行

ポジティブ

- 家計と企業にとってイスラム金融商品の需要は伝統的に強く、銀行はシャリア・コンプライアントな商品開発を拡充サウジの銀行は多くのコンベンショナルな商品を代替するイスラム金融商品を提供している
- M&A はイスラム金融の浸透を大きく進める契機

3 ESG

ポジティブ

- イスラム金融はそのシャリアに適う目的に沿っており、イスラム金融という形態での、安定的な資金調達手段の提供という意味では、「S」の要素が大きいと言える
- 社会的側面という観点では、イスラム金融を通じた家計の底支えによって、教育や医療等の基本的サービスへのアクセスを可能にしている
- 格付の観点からは、社会的側面が強い商品であっても、銀行の格付に与えるインパクトは限定的

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