



**TASK 38 - POWER TO X:  
NEEDS FROM POLICYMAKERS AND  
PUBLIC AND PRIVATE INVESTORS**

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# Political

## **National Strategies**

- Set national targets and long term policy signals.
- Establish national roadmaps for critical stakeholders to converge around.
- Boost investor confidence by reducing uncertainty and risk.
- Set ambitious GHG reduction and renewable deployment targets to help foster low carbon technology.
- Secure ambitious private pledges that could be supported by public authorities and innovation funds

## **Regulation**

- Remove unnecessary regulatory barriers to hydrogen investments such as facilitating the permit application process for refuelling stations and electrolyser installation.

## **Standardisation**

- Engage with National standardization institutions and international bodies such as the International Organization for Standardization (ISO).
- Establish global manufacturing standards for hydrogen technologies such as electrolysers, fuel cells and components for refuelling stations to provide cost reductions by economies of scale.

## Political (cont.)

### Incentives

- Provide tax breaks, subsidies or penalties on fossil-based alternatives to encourage or mandate the initial market steps of hydrogen.
- Implement a carbon price to both increase the profitability of low-carbon hydrogen production and the profitability of hydrogen use as a substitute to fossil-fuel options.
- Promote R&D and knowledge sharing.

### Coordination

- Coordinate private efforts around potential local investment opportunities.
- Set priorities and directions to organize the strategic investment efforts, especially in demonstration projects and knowledge sharing.

# Pathway Specific Needs

## **Power to Hydrogen**

- Promote low-carbon electricity that is needed for low carbon hydrogen.
- Promote renewable energy penetration where hydrogen can serve to avoid curtailment of excess electricity by providing grid balancing services, and facilitate green gas, green chemical and green fuel.
- Subsidise electrolyzers.
- Implement carbon pricing.
- Internalise externalities in business cases to reduce harmful emissions and environmental damage.

## **Hydrogen to X**

- Foster sector-specific measures by implementing standards and/or incentives during the transition.

## **Hydrogen to Power**

- Penalise fossil peak electricity generation as hydrogen may be the only way to produce electricity during peak hours and hence contribute to the stability of the electricity system during “stress” hours.

# Pathway Specific Needs (cont.)

## Hydrogen to Gas

- Provide government support for injection into natural gas networks to promote hydrogen market penetration.
- Require accounting for natural gas leakages.
- Set clear targets for the hydrogen blending concentration into the gas grid.
- Set standards for high concentrations of hydrogen in natural gas pipeline systems, underground storage and hydrogen use in burners.
- Implement a system of Guarantees of Origin for hydrogen to stimulate the use of renewable gases.
- Foster the development of “green” gas, feed-in tariffs for hydrogen or synthetic methane.
- Establish a quota system to foster the H2 to gas applications.

## Hydrogen to Industry

- Place stronger environmental constraints on the sulphur content or the carbon footprint of industry activities.
- Implement certificates, subsidies and/or penalties to ensure a “level playing field” for green hydrogen and facilitate the use of electrolysis.

# Pathway Specific Needs (cont.)

## Hydrogen to Fuels-H<sub>2</sub> and Synthesis

- Develop a clear strategic roadmap leading to the realization of the pledged target.
- Provide incentives for use of hydrogen fuels in vehicles, trains, and ships and the development of hydrogen infrastructure.
- Impose vehicle feebates and fee exemptions along with access to dedicated zero emission vehicle or bus lanes
- Implement carbon pricing.
- Set quotas for fuel shares (e.g. aviation, shipping) to boost the use of synthesized fuels and initiate economies of scale.

## Hydrogen to Heat

- Provide subsidies, feed-in tariffs or premiums.
- Set standards or targets such as the concentration of hydrogen into the NG grid, or the modalities of potential hydrogen participation to the electricity reserve market.
- Ensure policies for the industry and gas and power sectors are adapted to the regional context.



# THANK YOU



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