

## CIGRE Study committee C5

### PROPOSAL FOR THE CREATION OF A NEW WORKING GROUP

#### WG C5.42

#### NAME OF THE CONVENOR

Thorpe Greg (AUSTRALIA)

#### TITLE

Market pricing issues and solutions for low short-run marginal-cost systems

#### THE WG APPLIES TO DISTRIBUTION NETWORKS: NO

#### ENERGY TRANSITION

- 1 / Storage
- 4 / Sustainability and Climate Change
- 6 / Solar PV and Wind
- 8 / Sector Integration

#### POTENTIAL BENEFIT OF WG WORK

- 1 / commercial, business, social, economic benefits
- 2 / potential interest from a wide range of stakeholders
- 3 / likely to contribute to new or revised industry standards
- 4 / state-of-the-art or innovative solutions or directions

#### STRATEGIC DIRECTION

- 1 / The electrical power system of the future reinforcing the End-to-End nature of CIGRE: respond to speed of changes in the industry by preparing and disseminating state-of-the-art technological advances
- 2 / Making the best use of the existing systems
- 4 / preparation of material readable for non-technical audience

#### SUSTAINABLE DEVELOPMENT GOAL

- 7 / Affordable and clean energy
- 9 / Industry, innovation and infrastructure

#### BACKGROUND :

Electricity markets around the world are transitioning. The transition is:

- From: thermal systems or relatively hydro systems with readily determined opportunity cost (often based on alternative thermal generation in any event) based generation with material differences between SRMC systems that facilitate formation of a merit order or solution to an optimization algorithm
- To: systems dominated by generation and demand-side resources with zero or very low SRMC and more difficult to determine opportunity cost.

Currently infra-marginal units receive revenue essential to recovery of capex when market price is above their SRMC. However, prices consistently close to zero will lead to 'missing money' and potentially very volatile prices for short periods. These outcomes are theoretically to be expected but create untenable policy, and in some cases, financial risks.

This work will examine the market implications of price formation post the transition.

## PURPOSE / OBJECTIVE / BENEFIT OF THIS WORK :

The work will provide a resource to inform the evolution of market pricing arrangements in future power systems.

It will consider the time frame from day ahead to real time and consider energy and where applicable local market designs, ancillary services, capacity and emissions.

The work will contribute to potential benefits # 1, 2, 3, 4 listed in Table 3 below in that current arrangements in many markets are unable to provide investment incentives and do not deliver efficient real time price signals. Further there is considerable work around the world seeking improved approaches to pricing and there is high interest in this topic. To the extent the work can identify improved approaches it will contribute to new and innovative approaches to market pricing.

## SCOPE :

1. The work will consider the time frame from day ahead to real time and consider energy and where applicable ancillary services, capacity and emissions. The work will also assess, and if practicable develop, additional approaches for dispatch and pricing where significant gaps in future arrangements are found.

2. The first step will be in two parts:

- A survey of local and international markets and utility practices and plans

- A literature survey of state of current thinking in this area

- An interim report at the end of completion of a and b. (e.g. webinar or Electra article can be prepared at this point)

3. The second step will be to qualitatively and quantitatively assess the impact on market pricing of selected and planned approaches for managing security and reliability and operational efficiency, investment signaling, ancillary services and emissions. We would do this using a high-level model of selected approaches.

4. We would then develop a final report from steps 1 & 2 as a Technical Brochure, Electra article and webinar. The work will also assess, and if practicable develop, additional approaches where significant gaps in future arrangements are found.

## DELIVERABLES AND EVENTS

### Deliverables Types

Annual progress and activity report to Study Committee

Electra report

Technical Brochure and Executive Summary in Electra

Webinar

### Deliverables schedule

Technical Brochure Q2 2026 Technical Brochure

Webinar Q3 2026 Webinar

### Time schedule

Q1 2025 Recruit members (National Committees, WiE, NGN)

Q1 2025 Kick off meeting

Q2 2025 Develop final work plan

Q1 2026 Draft the Technical Brochure for Study Committee review

Q2 2026 Final Technical Brochure

Q3 2026 Webinar

## APPROVAL BY TECHNICAL COUNCIL CHAIRMAN:

Rannveig S. J. Loken

March 15th, 2025